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**82- SUBMISSIONS FACING SHEET**

**Follow-Up  
Materials**

MICROFICHE CONTROL LABEL



REGISTRANT'S NAME

L'Air Liquide S.A.

\*CURRENT ADDRESS

25, quai d'Orsay

75321 Paris Cedex 07

Paris, France

\*\*FORMER NAME

\*\*NEW ADDRESS

**PROCESSED**

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# Annual Report 2004

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# Profile

The world leader  
in industrial and medical gases

Present in more than 70 countries, Air Liquide provides industrial and medical gases and related services. The Group offers innovative solutions based on constantly enhanced technologies. These solutions, which are consistent with Air Liquide's commitment to sustainable development, help to preserve life and enable our customers to manufacture many indispensable everyday products. Founded in 1902, Air Liquide, with nearly 36,000 employees, has successfully developed a long-term relationship with its shareholders built on trust and transparency, and guided by the principles of corporate governance. Since the publication of its first consolidated financial statements in 1971, Air Liquide has posted strong and steady earnings growth. The Group's customers, shareholders and employees benefit jointly from its continuing development.



Sales:  
**9.4** billion euros  
almost  
**80%** outside  
France

**1** million customers

**2,601**  
protected inventions

**35,900**  
employees

**350,000**  
shareholders

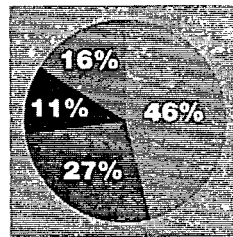
**Total sales: 9,376 million euros**



### Gas and Services sales

**€8,275 million**

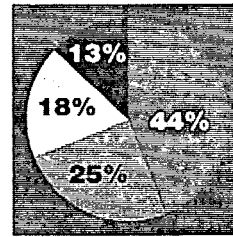
- Industrial Customers
- Large Industries
- Electronics
- Healthcare



### Related Activities sales

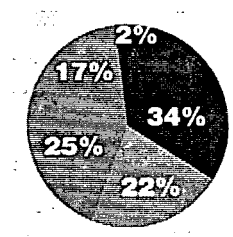
**€1,101 million**

- Welding material
- Engineering and Construction
- Chemicals
- Diving



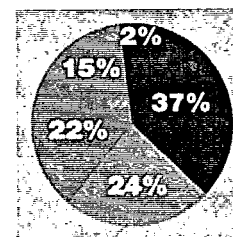
### Sales by geographic zone

- Europe (excluding France)
- France
- Americas
- Asia-Pacific
- Africa and Middle East



### Operating income by geographic zone

- Europe (excluding France)
- France
- Americas
- Asia-Pacific
- Africa and Middle East



Shareholder information under the flap



## SHAREHOLDERS' CHARTER

Shareholders are the focus of Air Liquide's strategy. Our objective is to increase the value of shareholder investment through strong, steady growth in earnings and dividends over the long term.

Air Liquide's responsibility towards all shareholders, formalized in the Shareholders' Charter, is based on the following four commitments:

### Consideration and respect for all shareholders

- equality of all shareholders: 1 share = 1 vote (no double-voting rights)
- respect of preferential subscription rights
- absence of anti-takeover bid measures
- restriction of resolutions proposed at Shareholders' Meetings to genuine corporate requirements
- clear and effective communication between the Supervisory Board and the Management Board

### Listening to and informing shareholders

- Shareholders' Communication Committee, frequent meetings with shareholders
- regular publication of information about the Company
- transparency and clarity of financial information published
- consistent and uniform accounting methods
- information sent to all shareholders before meetings

### Shareholder remuneration and increased investment value over the long term

- steady long-term growth in earnings
- strong dividend-payout policy: dividend and bonus shares
- higher dividend payouts for loyal registered shareholders

### Shareholder Services

- twenty-member Shareholder Services dedicated to individual shareholder relations
- personalized and low-cost management of directly registered share accounts

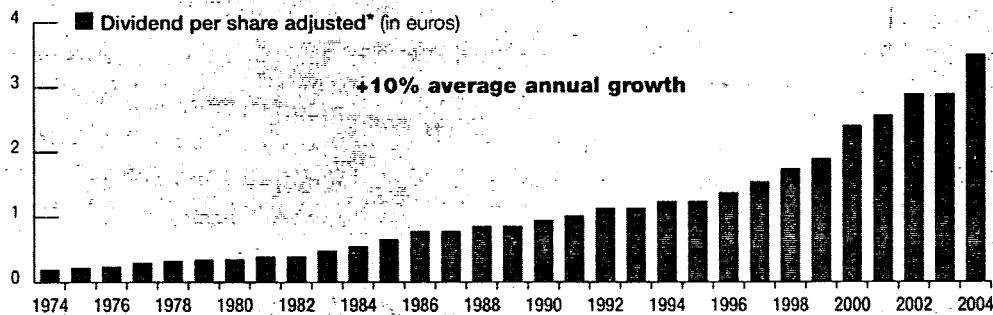
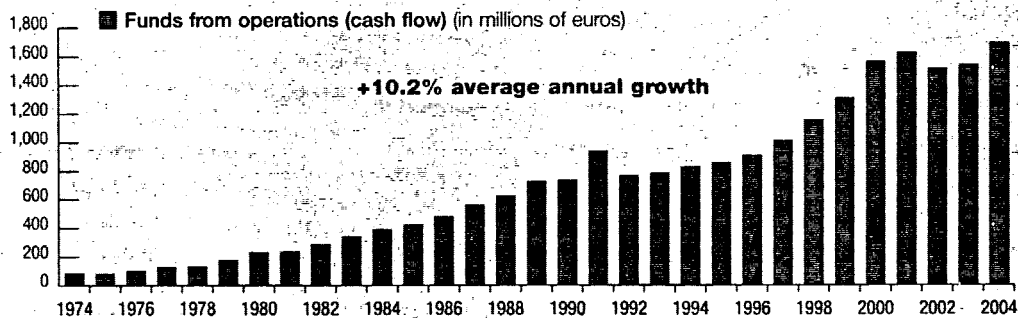
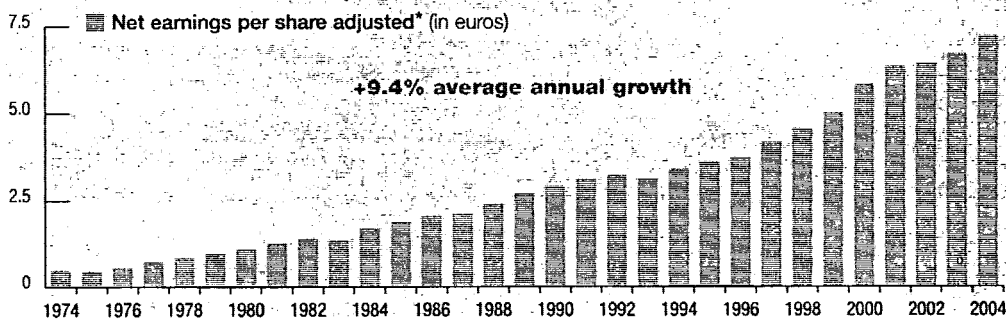
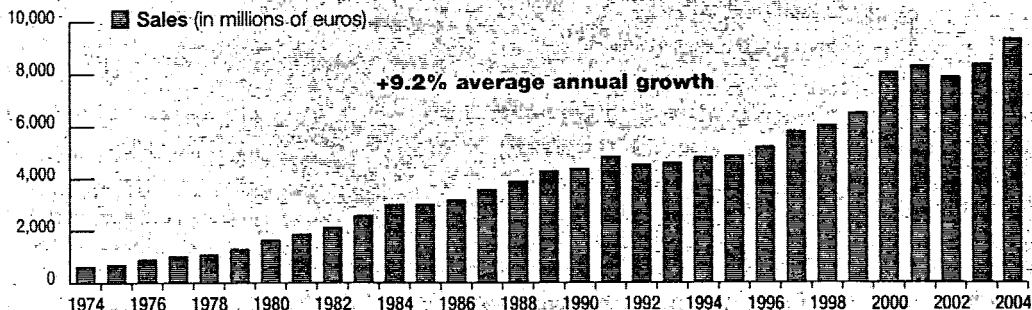
Shareholders are central to the concerns of Air Liquide and its managers. Every decision is made in consideration of the medium and long-term interests of shareholders. Air Liquide considers their loyalty over the long term to be a source of continuity in terms of its strategy for achieving strong earnings growth.

Please turn to the sustainable development section of this Annual Report for a full account on "Creating value for shareholders".

# holders

## CREATING VALUE OVER THE LONG TERM

Solid and sustained performance over 30 years



\* Taking into account bonus share allocations.

Shareholder information under the flap

# Annual Report and Report on sustainable development



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Air Liquide chose to incorporate the four dimensions of its approach to sustainable development into the Annual Report: responsibility to shareholders; safety and environment; men and women; innovation and technological progress. A specific section at the end of this report presents the indicators measuring the Group's progress in these areas.



**Alain Joly**  
Chairman  
of the Supervisory Board

# Strength and vitality

*Ladies and Gentlemen, Dear Shareholders,*

*The acquisition of the Messer activities, for which negotiations started in 2003, was the main event of 2004 and a milestone in the development of Air Liquide. The operation was conducted very professionally by the Group's teams under the guidance of the Management Board, and the project was completed according to plan, within budget, and on schedule.*

*The Supervisory Board was kept regularly updated on the progress of this acquisition, and the necessary requests for approval were properly and methodically submitted. Authorizations from the European and American competition authorities were secured expeditiously and on terms previously announced.*

*Similarly, divestments called for by these authorities were carried out according to schedule and for amounts consistent with the objectives advised by the Management Board to the Supervisory Board. The funding of this acquisition was completed according to the Group's prudent financial rules drawing down mid-term credit lines with different maturity dates at satisfactory interest rates.*

*The Supervisory Board is pleased with the continuing integration of the different teams, and it is very much in this spirit that Klaus Schmieder, formerly Chairman of the Management Board of Messer, has been appointed to Air Liquide's Management Board. The mandates of the members and Chairman of the Management Board have been renewed for three years.*

*In addition to the Messer transaction, Air Liquide pursued other important opportunities in growing market segments, whilst simultaneously improving productivity and efficiency within the Group. Earnings for 2004 testify to the Group's strength and vitality.*

*Throughout 2004, the Supervisory Board diligently monitored compliance with proper corporate governance principles paying utmost attention to reliability and transparency. We remain very much committed to the relationship of trust that exists, and has always existed, between Air Liquide and its shareholders.*

# A new momentum

## **How would you characterize 2004?**

The year 2004 was a very significant year for the Group. Our performance was strong: +11.7% in sales, +7.1% in net earnings and +7.8% in net earnings per share. In North America and Asia, we built on the favorable economic climate to expand our activities across the board. In Europe, our activity outgrew the economy, thanks largely to the introduction of high value-adding solutions and the strong performance in our Healthcare, Large Industries and Welding business lines. The global achievements of Air Liquide engineering provided further evidence of the Group's dynamism.

## **And then there was Messer...**

Without a doubt, the main project in 2004 was the acquisition and integration of Messer's activities in Germany, the United Kingdom and the United States. This is the Group's largest and most ambitious external growth operation in 20 years! With this exceptional opportunity to expand in its core business, the Group has strengthened its global leadership and broadened its geographic reach. Germany, where Air Liquide sales have doubled, now forms a firm base for expansion into Central and Eastern Europe. Air Liquide is also consolidating its national presence in the United States by cementing its position in the North-East, a region accounting for 50% of American industrial production. Finally, this acquisition has enabled the Group to establish a targeted presence in the United Kingdom.

## **What are the financial implications for the Group?**

The transaction, at a cost of 2 billion euros after divestments, was entirely funded through debt. As planned, proceeds from divestments required by the competition authorities reduced the net indebtedness to shareholders' equity ratio to 66% at year-end 2004. Within four years, this ratio will be back below 50%. Given Air Liquide's financial strength, the overall balance is respected and we retain the capacity to generate sufficient funds from our operations to finance our growth strategy in the future. In 2004, Messer's activities, consolidated over eight months, made a positive impact of 471 million euros on sales, and have already made a modest but positive contribution to the Group's net earnings.

## **What does this mean for the Air Liquide organization?**

Our considerably strengthened position in the German market has greatly enhanced our presence in Europe. This new base will significantly facilitate Air Liquide's European integration and is in keeping with the continent's east-bound political development and economic growth. Thanks to the implementation of a single information system and cross-border sharing of resources, Air Liquide's European vision is already becoming a reality. Another milestone was the establishment of a European Management Committee chaired by Klaus Schmieder, a member of Air Liquide's Management Board since May, 2004. A number of support functions will be coordinated at the European level, including purchasing, information systems, marketing and industrial operations. Teams will also be formed to carry out priority development projects as appropriate. This new framework will enable us to increase efficiency, to reduce time to market for new solutions and to serve our customers better.



**Benoît Potier**  
Chairman  
of the Management Board





**What are the implications for the teams?**

*The expansion in Europe will open up new opportunities for the men and women of the Group, as the newly-created teams call upon all the skills of our people in different countries. To assist employees who wish to develop their mobility or skills, Air Liquide will implement an extensive program of training and professional development in 2005.*

**What is the basis of Air Liquide's growth?**

*Air Liquide's growth is based on three drivers. The first, our core business, is indispensable to industry in fully-developed economies. This enables us to take advantage of long-term industrial development. The integration of the Messer activities will clearly reinforce this base.*

*The second driver is our growing presence in emerging economies where we can capture new opportunities. China is a case in point as Group sales there increased by +40% in 2004. In line with this growth, Air Liquide plans to invest 500 million euros in China over the next five years.*

*The third growth driver is Air Liquide's ability to transform markets, and deliver added value, through innovation and the introduction of new technologies and services. Providing a fast track for the dissemination of innovative solutions, in both developed and emerging economies, is an important feature of the OPAL productivity program.*

**What is the objective of the OPAL program?**

*This ongoing program focuses on improving the Group's productivity and efficiency with a view to reducing costs and accelerating growth, in particular by minimizing time to market for new products and services. Identifying and sharing the Group's best practices is a key aspect of this program that is expected to generate 400 million euros in savings between 2004 and 2007.*

**What progress has the Group made in the domain of sustainable development?**

*Each year, we continue to move forward on this important issue. Our approach is based on four dimensions: responsibility to shareholders; safety and preservation of the environment; social and ethical commitment; and lastly, innovation and technological progress. Our teams are especially creative with respect to environmentally responsible solutions.*

*In addition, we are gradually implementing a worldwide system of indicators to track the Group's performance in this regard.*

*In 2004, we made a particular effort to improve the safety and reliability of our industrial systems and management procedures globally. This initiative was well received, particularly by our corporate customers faced with the same challenges in their own operations.*

**A lot is being said about hydrogen as a source of clean energy.**

**What is Air Liquide's position on this?**

This is yet another example of a sustainable development issue. Hydrogen is part of the wide-ranging debate on energy sources in the future and the efforts to find alternatives to fossil fuel resources. Air Liquide is making a significant contribution to the search for tomorrow's energy solutions, on the understanding that most of these will involve gases. Hydrogen, as a clean energy carrier, is particularly relevant in this context.

The Group has developed top-level expertise at each stage of the hydrogen energy chain: from production, storage and distribution up to its use in a fuel cell. In 2004, we launched the first applications of this cell as an energy source for telecommunication towers.

We are also taking part in various experiments in the area of transportation that could see practical applications within 10 to 15 years.

We should also keep in mind the important contribution oxygen makes in energy creation by allowing us to capitalize on hydrocarbon fossil fuels using more environmentally friendly processes.

**What are your comments on the growth of Air Liquide's share price in 2004?**

The value of Air Liquide shares increased by +6.8%, in line with the CAC 40. Performance was satisfactory, if slightly below our expectations. Although the acquisition of Messer was unanimously hailed as a positive initiative, it also gave rise to some uncertainty, which we have managed to allay as the project progressed. More than ever, Air Liquide remains committed to increasing shareholders' remuneration through strong and steady growth over the long term.

**What is the outlook for 2005?**

In 2005 and beyond, the Group should reap the rewards of its efforts in 2004 and prior years. Many new contracts have been signed or renewed in the Large Industries and Electronics sectors. Healthcare has been reorganized to enhance its local presence, and innovative solutions have been marketed to Industrial Clients. In addition, the Group has extended its presence into new geographic areas, broadened its base, boosted its technological expertise and is finding new ways to improve efficiency.

These accomplishments, achieved through the competence and drive of Air Liquide's teams worldwide, combined with the support of our shareholders, are creating new momentum and will lead to further growth in 2005 and the years beyond.



- **Messer, a major step forward**
- **Financial stability maintained**
- **Return to steadier growth**

# Corporate governance

## Supervisory Board

The Supervisory Board met six times in 2004. The member attendance rate was 85.5%.

### The Supervisory Board's activities centered on the following points:

#### ■ Regular auditing of Group management

The Supervisory Board examined the Management Board's quarterly reports, reviewed the minutes of Committee meetings, and exercised its authority for prior approval, particularly for major investments.

#### ■ Monitoring of significant issues

– the acquisition of Messer activities in Germany, the United Kingdom and the United States: the Supervisory Board was

regularly and frequently informed on progress and, in compliance with Article 22 of the Articles of Association, approved each stage of this development project.

The Supervisory Board was also regularly updated on the divestments required by the competition authorities and on the status of the integration process. In addition to regular meetings, an extraordinary meeting was held to discuss this transaction,

– **strategic directions:** the Management Board and relevant operational managers made presentations to the Supervisory Board on the Group's major business lines, growth drivers, and strategic objectives identified in Asia, the Middle East, Europe and America. A special meeting in June addressed the Group's strategic directions,

– **statutory auditors:** following the Audit and Accounts Committee's work and its recommendation, the Supervisory Board followed the **selection** procedure for the appointment of **statutory auditors**, and nominated the Ernst & Young and Mazars & Guérard firms at the General Shareholders' Meeting.

## Supervisory Board

*The Supervisory Board controls the Management Board's management of the Company. It is currently composed of ten members appointed for four-year terms who are selected on the basis of their abilities, integrity and dedication to the interests of all shareholders. The Company's Articles of Association require that each member of the Supervisory Board hold at least 500 Air Liquide registered shares. On the basis of the four independence criteria established by the Supervisory Board, eight of the ten current members are independent of the Group.*

*The principles guiding relations between the Management Board and the Supervisory Board are clearly defined in an internal document. Moreover, the Supervisory Board is subject to internal rules governing its composition and operations. An internal code of conduct on the prevention of insider trading, updated in 2004, details the legal obligations and regulations applying to members of the Supervisory Board.*

*The Supervisory Board includes an Audit and Accounts Committee and a Selection and Remuneration Committee.*

#### ■ Operation of the corporate structure

The Supervisory Board met, without the members of the Management Board, to consider:

– **Management Board operations:** the Supervisory Board enlarged the Management Board to three following the acquisition of Messer's activities, and appointed Klaus Schmieder to the Management Board. The Supervisory Board renewed for three years the terms of office of the members and Chairman of the Management Board, which were due to expire. The Supervisory Board set the variable remuneration applicable to Management Board members for the 2003 fiscal year, in addition to the fixed remuneration and principles that would apply to the variable portion for 2004,

– **Supervisory Board operations:** the Supervisory Board approved the motions to nominate Supervisory Board members or renew their terms of office. The Supervisory Board conducted another assessment of its operations by having its members fill out individual questionnaires. Based on a summary report of responses, the Supervisory Board adopted action proposals in relation to its composition, the composition of its committees, the scope of its activities and training opportunities for Board members. Finally, the Supervisory Board established the allocation rules applicable to members' attendance fees this year.

## Management Board

The Management Board met 21 times in 2004 to formulate the Group's strategy and monitor business progress.

It deliberated regularly on the acquisition of Messer's activities in Germany, the United Kingdom, and the United States. It approved the financing terms and conditions of the transaction as well as the necessary divestments that were carried out in accordance with the authorizations granted by the competition authorities.

Within the framework of authorizations provided in the Articles of Association, the Management Board decided to distribute

bonus shares and to allocate stock options to managers and employees of the Company and its subsidiaries. Similarly, it determined the Company's share buyback policy.

As before, the Management Board remained especially vigilant in relation to issues of employee safety.

The Management Board reviewed the Group's estimates, annual budgets and targets, financial statements, investments and major industrial projects under negotiation, and gave all necessary approvals.

Delegations of authority within the Company were renewed as appropriate.

### Management Board

*The Management Board, a collegial body appointed by the Supervisory Board, grew from two to three members in May, 2004. Benoît Potier, Chairman of the Management Board, and Jean-Claude Buono, were joined by Klaus Schmieder. They are assisted by the Management Board Secretary.*

*The Management Board is responsible for managing the Company in compliance with the law and the Articles of Association. It formulates the Group's strategy and, for overall coordination and implementation, it relies on the Executive Committee currently composed of 12 members, including the members of the Management Board.*

*Each time the Management Board meets, a written report is submitted to the Chairman of the Supervisory Board. A quarterly report is submitted to the Supervisory Board.*

## Supervisory Board

### Audit and Accounts Committee

The Audit and Accounts Committee met four times in 2004. The member attendance rate was 94.1%.

#### Review of annual and half-yearly financial statements

Particular attention was paid to off-balance sheet items, taxation, non-recurring elements, provisions, and management of customer, country and exchange rate risks.

Furthermore, the Committee turned its attention specifically to the financing terms and conditions of the acquisition of Messer activities, and its impact on the Group's financial statements and debt level.

The statutory auditors presented their reports to the Committee.

### Specific presentations

A presentation was made to the Committee on the initial studies addressing the implementation of IAS standards.

Several presentations were made to the Committee in an effort to determine the typical content of Management Board reports to the Supervisory Board on the risks management policy.

The Committee received full clarification on the Group's insurance policy and its implementation throughout the organization.

### Selection of statutory auditors

The Committee took an active part in the selection process of candidate firms proposed by the Supervisory Board for a vote at the General Shareholders' Meeting, and advised the Supervisory Board of its recommendations.

#### **Audit and Accounts Committee**

*É. de Royere (Chairman of the Committee), Sir Christopher Hogg, G. de La Martinière, Sir Dennis Weatherstone (three independent members out of four).*

*Under corporate rules, the Audit and Accounts Committee must be composed of four or five members of the Supervisory Board, of whom at least two-thirds are independent.*

*The Committee brings its judgment to bear on the financial statements approved by the Management Board, accounting practices, the existence and implementation of internal audit methods and organization, and the selection and reappointment of statutory auditors. In its assessments, the Committee draws on the professional experience of its members and relies on reports submitted by the Management Board, by the Finance and Administration, Legal, and Internal Audit Departments, and by statutory auditors.*

*The Committee meets at least three times a year and always before any meeting of the Supervisory Board that reviews annual and half-yearly financial statements. The Committee reports on its work to the Supervisory Board orally and in writing. It can also draw on the expertise of external advisers.*

## **Selection and Remuneration Committee**

The Selection and Remuneration Committee met three times in 2004. The member attendance rate was 100%.

### **New candidates for the Supervisory Board**

With Supervisory Board approval of the Committee's proposals, Professor R. Krebs was elected, and É. de Royere reelected at the General Shareholders' Meeting in May, 2004.

At the end of 2004, the Committee submitted new proposals for the 2005 General Shareholders' Meeting.

### **Attendance fees for Supervisory Board members**

As proposed by the Committee, the Supervisory Board set the distribution principles and amounts applicable for 2004.

### **Operation of the Management Board**

Following the acquisition of Messer activities, the Committee recommended that Klaus Schmieder be appointed to the Management Board. The Committee also proposed that the Supervisory Board renew the terms of office of the members and Chairman of the Management Board, which were due to expire.

### **Remuneration of Management Board members**

The Committee made recommendations to the Supervisory Board on the fixed portion and the formulas for calculating the variable portion of Management Board members' remuneration for 2004.

### **Selection and Remuneration Committee**

*A. Joly (Chairman of the Committee), T. Desmarest, L. Owen-Jones (two independent members out of three).*

*The Committee examines the composition of the Supervisory Board and assesses how it should evolve. It directs the search for new members and proposes candidates to the Supervisory Board. It reviews the appointments, remuneration and working conditions of Management Board members. It assesses their performance and reports to the Supervisory Board.*

*The remuneration policy for the Management Board, as approved by the Supervisory Board, includes:*

- *a short-term portion, consisting of a fixed portion tied to the level of responsibility and experience in the function, and a variable portion, currently evaluated against three elements of performance: growth in net earnings per share, return on capital employed after tax, and individual qualitative objectives that take into account preparing for the Company's future development, responding to changes in the business environment and, in 2004, successfully implementing the various stages of the acquisition of Messer activities.*

*Formulas are established at the beginning of the year; the actual amounts are determined at the end of the period, based on results.*

- *stock option plans complete the short-term remuneration plan, with an incentive consistent with shareholders' mid-term interests.*

*These various elements aim to be competitive, without being excessive, in light of external market studies and with serious consideration given to shareholder interests. In the past, stock option plans were established every two years. In response to shareholder expectations, it is proposed that this approach eventually be replaced by annual plans, to be set for predetermined periods, so as to avoid exposure to criticism should the stock market prices fluctuate widely.*

*The Committee also examines stock option plans proposed by the Management Board for other Company managers.*

*It recommends their allocation by the Supervisory Board, following the same guiding principles, with the objective of motivating a significant number of managers over the mid-term while maintaining the total number of options at a reasonable level. The Management Board's policy is to buy shares on the market in order to neutralize any dilution that could result from issuing shares.*

*Data on remuneration and options can be found in the Management Report. The Committee is also kept informed on the performance and remuneration of the Executive Committee team. Periodically, it also considers how the Management team should evolve.*

# Supervisory Board



## 1 - Alain Joly

### Chairman of the Supervisory Board

- Member and Chairman of the Supervisory Board since November, 2001 (term expires in 2005)
- Director from 1982 to November, 2001
- Chairman and Chief Executive Officer from 1995 to 2001
- Chief Executive Officer from 1985 to 1995
- Director, SOAEO
- Director, American Air Liquide Inc. and Air Liquide International Corporation (until December, 2004)
- Director, Lafarge and BNP Paribas

*Born in 1938 (51,122 shares)*



## 2 - Édouard de Royere

### Honorary Chairman

- Member of the Supervisory Board since November, 2001 (term expires in 2008)
- Director from 1971 to November, 2001
- Chairman and Chief Executive Officer from 1985 to 1995
- Director, American Air Liquide Inc. and Air Liquide International Corporation (until December, 2004)
- Director, Siparex Associés (since July, 2004) and Sodexo Alliance
- Member, Supervisory Board, Michelin
- Auditor, Wanadoo (until March, 2004) and Fimalac
- Chairman, Association Nationale des Sociétés par Actions (ANSA) (until June, 2004) and Honorary Chairman of this organization since that date

*Born in 1932 (27,782 shares)*



## 3 - Lindsay Owen-Jones

### Vice-Chairman of the Supervisory Board

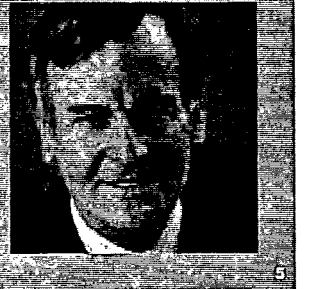
- Member of the Supervisory Board since November, 2001 (term expires in 2005)
- Director from 1994 to November, 2001
- Chairman and Chief Executive Officer, L'Oréal
- Director, L'Oréal USA Inc. and L'Oréal UK Ltd.
- Director, BNP Paribas, Sanofi-Aventis and Gesparal (until April 29, 2004)
- Chairman (until May 24, 2004) and Director, Galderma Pharma S.A., Switzerland

*Born in 1946 (1,016 shares)*



## 4 - Thierry Desmarest

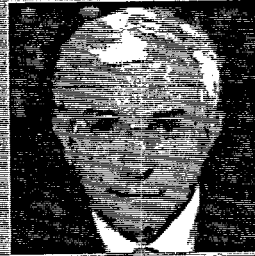
- Member of the Supervisory Board since November, 2001 (term expires in 2005)
  - Director from 1999 to November, 2001
  - Chairman and Chief Executive Officer, Total S.A. and Elf Aquitaine
  - Chairman, Total Foundation
  - Director, Sanofi-Aventis
  - Member, Supervisory Board, Areva
- Born in 1945 (970 shares)*



## 5 - Sir Christopher Hogg

- Member of the Supervisory Board since November, 2001 (term expires in 2005)
- Director from 2000 to November, 2001
- Chairman, Board of Directors, Reuters Group (until September 30, 2004)
- Chairman, Board of Directors, GlaxoSmithKline (until December 31, 2004)
- Chairman, Board of Directors, Royal National Theatre (until October 31, 2004)

*Born in 1936 (685 shares)*



### 6 - Professor Rolf Krebs

- Member of the Supervisory Board since May, 2004 (term expires in 2008)
- Chairman, Supervisory Board, Epigenomics AG
- Member, Supervisory Board, Ganymed Pharmaceuticals AG, mg technologies AG and Vita 34 AG
- Member, Advisory Board, Apax Partners, Deutsche Venture Capital, Peters Associates and Weissheimer Malz GmbH

*Born in 1940 (550 shares)*

### 7 - Gérard de La Martinière

- Member of the Supervisory Board since May, 2003 (term expires in 2007)
- Chairman, French Federation of Insurance Companies
- Chairman, European Federation of National Insurance Associations
- Director, Schneider Electric S.A.
- Chairman, Board of Directors, LCH, Clearnet Group Limited UK

*Born in 1943 (825 shares)*

### 8 - Cornelis van Lede

- Member of the Supervisory Board since May, 2003 (term expires in 2007)
- Member, Supervisory Board, Akzo Nobel N.V., Royal Philips Electronics N.V., Heineken N.V.
- Director, Air France-KLM, Reed Elsevier and Sara Lee Corporation
- Chairman, Board of Directors, INSEAD

*Born in 1942 (550 shares)*

### 9 - Béatrice Majnoni d'Intignano

- Member of the Supervisory Board since April, 2002 (term expires in 2006)
- Professor of Economics, Université de Paris XII - Créteil
- Member, Economic Analysis Council
- Director, AGF

*Born in 1942 (634 shares)*

### 10 - Sir Dennis Weatherstone

- Member of the Supervisory Board since November, 2001 (term expires in 2005)
- Director from 1994 to November, 2001
- Trustee, International Accounting Standards Committee Foundation
- Director, New York Stock Exchange
- Former Chairman and Chief Executive Officer, JP Morgan & Co

*Born in 1930 (959 shares)*

**Michel Bon** and **Pierre-Gilles de Gennes** were members of the Supervisory Board until May 12, 2004.

In 2004, the Works Council delegates were as follows: Marie-Annick Masfrand, Guy Cours, Gilles Boudin and Philippe Bastien, who replaced Armand Defoulounoux, Marc Esnault, Marie-Pascale Wyckaert and Jean-Marie Thiebaut.





# Supervisory Board Report

The Supervisory Board reviewed the Company's performance and results on a regular basis throughout 2004.

Strong growth in consolidated sales (+11.7%) and net earnings (+7.1%), taking into account the financial impact of the acquired Messer activities over eight months, is a measure of the Group's capacity to combine significant external development with ongoing organic growth.

The acquisition of Messer's activities was the most remarkable event of 2004.

Having confirmed its approval of this acquisition, which strengthens the Group's core business in Europe and the United States, the Supervisory Board received regular updates on progress from the Management Board. It was pleased with the diligent implementation of the various project stages, including the acquisition, regulatory authorizations, divestments and the initial phase of the integration process, all before the end of the fiscal year in compliance with the plan initially approved.

At the end of the year, net indebtedness following this acquisition and related divestments was 3,790 million euros, below the targeted level initially announced. With a high level of funds from operations and a ratio of net indebtedness to shareholders' equity of 66%, your Company retains a very strong financial base.

Following this transaction, the Supervisory Board appointed Klaus Schmieder (formerly Chairman of the Management Board of Messer) to the Management Board of Air Liquide.

When evaluating the performance of the members and Chairman of the Management Board this year, the Supervisory Board took the Group's achievements into account. It renewed for three years the terms of office of the members and Chairman of the Management Board which expired on November 13, 2004, thus affirming its confidence in the current management

team consisting of Benoît Potier (Chairman), Jean-Claude Buono (Executive Vice-President), and Klaus Schmieder (Executive Vice-President).

The Supervisory Board has been apprised of its Chairman's report, prepared in compliance with the law, and detailing the conditions for the preparation and organization of the Supervisory Board's work, as well as internal control procedures implemented by the Company. This report can be found on page 139 of the present document. The Supervisory Board wishes to emphasize that, as in the past, it considers shareholders' interests and the Company's transparent approach to be of the utmost importance.

In compliance with the law, the Supervisory Board reviewed the financial statements for 2004, previously approved by the Management Board, along with the Management Report for the period. It also reviewed the consolidated financial statements. The Supervisory Board has no comment to make with regard to these documents.

The Management Board proposes to set the dividend per share at 3.50 euros. This amount is increased by +10% for shareholders who, as of December 31, 2004, have held registered shares for two years or more.

As in previous years, it is proposed that the authorization to purchase shares of the Company on the stock market, and to cancel such shares within a limit of 10% of the capital stock outstanding, be renewed for the period permitted by law. The Supervisory Board has no comment to make with regard to these proposals.

Sir Dennis Weatherstone and Sir Christopher Hogg, members of the Supervisory Board, have not requested, given the age limit, renewal of their appointments at expiration.

The Supervisory Board thanks them both for their advice and contribution to the work of the Board and its Committees, as well as their active participation in the

important decisions of the Supervisory Board and previously the Board of Directors of the Company.

The Supervisory Board proposes to renew, for four years, the Supervisory Board appointment of the following members: Alain Joly, Chairman of the Supervisory Board, Lindsay Owen-Jones, Vice-Chairman of the Supervisory Board, and Thierry Desmarest.

Alain Joly, current Chairman of the Supervisory Board, was Chairman and Chief Executive Officer from 1995 to 2001 and Chief Executive Officer from 1985 to 1995. He will continue to bring to the Supervisory Board his experience and in-depth knowledge of the Group's business lines and activities.

Lindsay Owen-Jones, Chairman and Chief Executive Officer of L'Oréal, Director of Air Liquide from 1994 to 2001, then member of the Supervisory Board, brings to it his experience as head of a multinational corporation and his knowledge of market penetration and of the international arena.

Thierry Desmarest, Chairman and Chief Executive Officer of Total, Director of Air Liquide from 1999 to 2001, then member of the Supervisory Board, brings to it his experience as head of a large industrial and multinational corporation and his knowledge of markets relevant to our business lines.

The Supervisory Board confirms Lindsay Owen-Jones and Thierry Desmarest as independent members, since any business links between Air Liquide and the companies they run do not make up a significant part of the activities of either Air Liquide or those companies.

The Supervisory Board also proposes the appointment of Thierry Peugeot. Born in 1957, Thierry Peugeot graduated from ESSEC and began his career with the Marrel group as Export Manager for the Middle East and English-speaking Africa, then Director of the American subsidiary. In 1988, Thierry Peugeot joined the

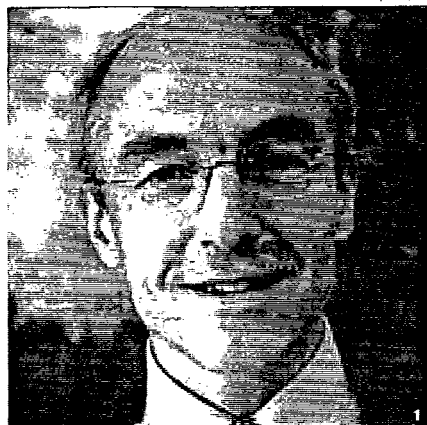
Peugeot group where he successively assumed the position of Southeast Asia Regional Manager, Chief Executive Officer of the Brazilian subsidiary and then of SLICA, Peugeot's main marketing subsidiary in France. At Automobiles Citroën, he became International Key Accounts Director, and then Vice President Services and Spare Parts, before being appointed member of the PSA Peugeot Citroën Vice Presidents Committee. Since December, 2002, Thierry Peugeot has been Chairman of the Supervisory Board of Peugeot S.A. Thierry Peugeot will bring to the Group his experience of a large French industrial organization with broad international reach and an orientation towards markets for the general public. On the basis of selected criteria guiding the Supervisory Board in assessing the level of independence of its members, the Supervisory Board considers Thierry Peugeot to be independent.

These proposals reflect the Supervisory Board's desire to select members for their skills, integrity, independence and dedication to the interests of all shareholders.

The Supervisory Board recommends the adoption of these resolutions.

Finally, on the recommendation of the Audit and Accounts Committee, the Supervisory Board acknowledged that, from 2005, Olivier Breillot would be the new signing partner from Ernst & Young, the Company's statutory auditors. Olivier Breillot replaces Dominique Thouvenin who was initially anticipated for the position but had to scale down his activities for personal reasons.

# Management structures



## Management Board

### Members of the Management Board

#### 1 - Benoît Potier Chairman of the Management Board

With the Group for 24 years, Benoît Potier has been Chairman of the Management Board since November, 2001. He is also:

- Director, SOAEO
- Chairman and Chief Executive Officer, Air Liquide International, American Air Liquide Inc. and Air Liquide International Corporation
- Chairman, American Air Liquide Holdings, Inc.
- Director, AL America Holdings, LLC
- Director, Air Liquide Italia Srl., AL Air Liquide España, Air Liquide Asia Pte. Ltd., Air Liquide Canada Inc.
- Director, Danone Group
- Member, Supervisory Board, Michelin
- Director, École Centrale des Arts et Manufactures

(5,397 shares)



#### 2 - Jean-Claude Buono Executive Vice-President

Jean-Claude Buono joined Air Liquide in 1989. He brings to the Management Board his strong experience in financial and legal areas. In addition, he currently has major operational responsibilities in Europe and Asia. He has been a member of the Management Board since November 2001.

- Chairman, Board of Directors, SOAEO
- Director, Séchillienne-Sidec (until December 13, 2004)
- Chairman and Chief Executive Officer, Air Liquide Welding and Air Liquide Asia Pte. Ltd.
- Vice-Chairman, Carba Holding
- Director and Executive Vice-President, Air Liquide International
- Director, Air Liquide Santé International, Aqualung International, American Air Liquide Inc., Air Liquide International Corporation, Air Liquide Far Eastern Ltd., Air Liquide Tunisie, Air Liquide Italia Srl., AL Air Liquide España, Air Liquide US LLC (until June 17, 2004)

- Director, Velecta Paramount
- Director, SNPE

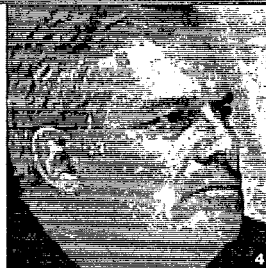
(8,094 shares)



#### 3 - Klaus Schmieder Executive Vice-President

Klaus Schmieder has been a member of the Management Board since May 12, 2004. Former Chairman of the Management Board of Messer, he is the Chairman of the European Management Committee, and is responsible for overseeing and coordinating Gas and Services operations in Europe, excluding Large Industries and Healthcare.

- Member, Supervisory Board, Altana AG
- Director, MNS Nippon Sanso (until January 5, 2005)



## Executive Committee

### Members of the Management Board

#### **Benoît Potier**

Chairman of the Management Board  
Born in 1957 – French nationality

#### **Jean-Claude Buono**

Executive Vice-President  
Born in 1943 – French nationality

#### **Klaus Schmieder**

Executive Vice-President  
Born in 1948 – German nationality



### Members of the Executive Committee

#### **4 - Pierre Dufour**

Executive Vice-President  
North and South America,  
and Middle East, Industrial Activities,  
Safety, Industrial Risks, Electronics  
Born in 1955 – Canadian nationality

#### **5 - Colin Kennedy\***

Senior Vice-President  
Asia-Pacific  
Born in 1945 – New Zealand nationality

#### **6 - Jean-Marc de Royere**

Senior Vice-President  
Health, Specialty Chemicals  
Born in 1965 – French nationality

#### **7 - Jean-Pierre Duprieu\***

Senior Vice-President  
Northern, Central and Mediterranean  
Europe, Africa  
Born in 1952 – French nationality

#### **8 - John Glen**

Vice-President  
Finance and Administration  
Born in 1959 – Scottish nationality

#### **9 - François Darchis**

Vice-President  
Large Industries Europe,  
Marketing and R&D,  
Engineering and Technologies  
Born in 1956 – French nationality

#### **10 - Ron LaBarre**

Vice-President  
Large Industry Markets,  
International Customers  
Born in 1950 – U.S. nationality

#### **11 - Larry Altobell**

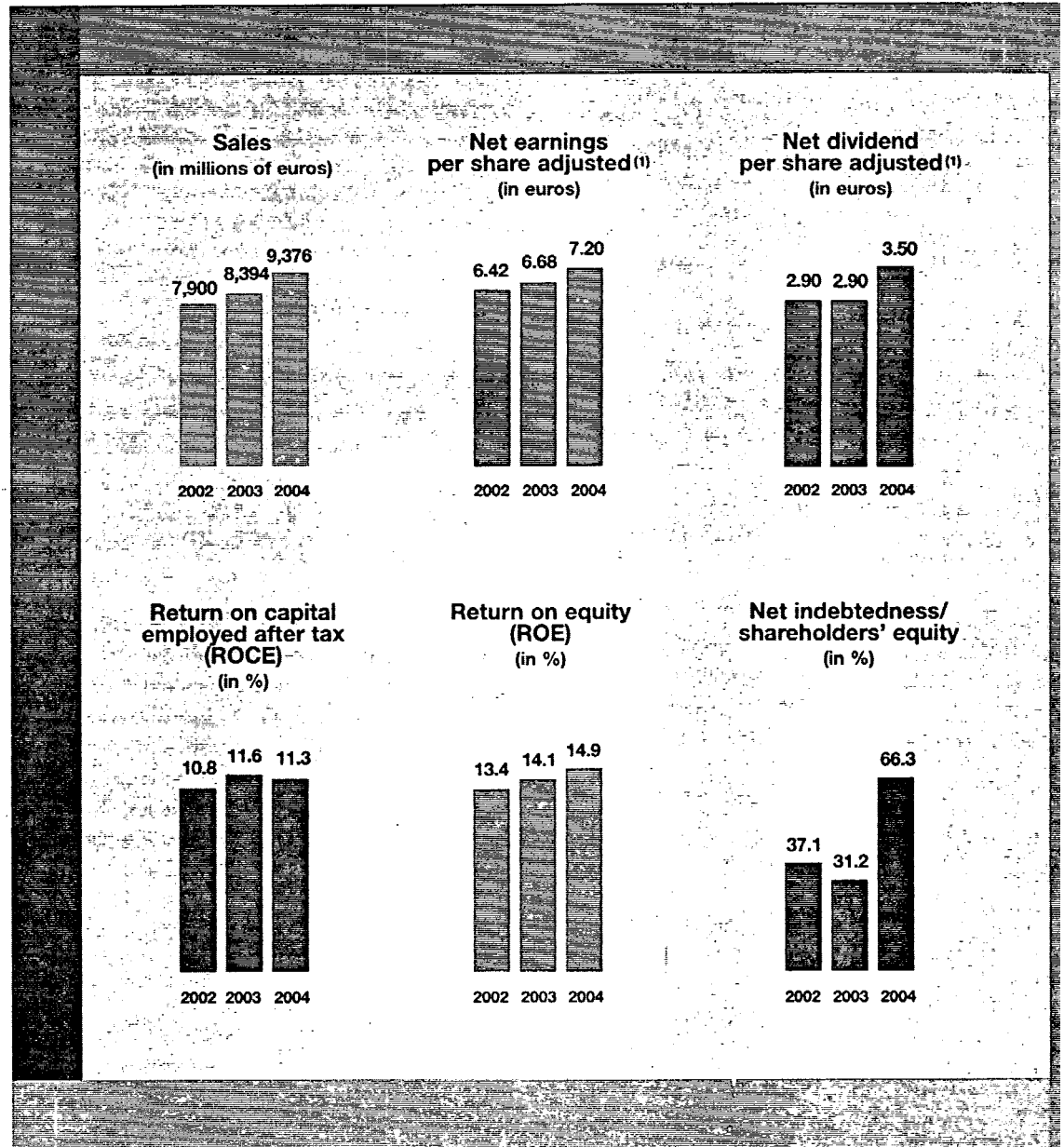
Vice-President Human Resources  
Born in 1945 – U.S. nationality

#### **12 - Dominique Maire**

Vice-President Communications  
Born in 1948 – French nationality

\* Early in 2005, Jean-Pierre Duprieu was appointed Vice-President Asia-Pacific. He will take up his duties in June when Colin Kennedy is retiring.

# Key figures



(1) Adjusted to take into account the one-for-ten bonus share issue in 2004.

**Evolution over three years**

(in millions of euros)	2002	2003	2004	2003/2004	2003/2004 excluding foreign exchange	2003/2004 excluding foreign exchange and Messer
Sales	7,900	8,394	9,376	+11.7%	+14.5%	<sup>(1)</sup> +7.1%
of which Gas and Services	6,887	7,389	8,275	+12.0%	+15.0%	<sup>(1)</sup> +6.6%
Operating income	1,162	1,196	1,277	+6.8%	+9.2%	+7.1%
Net earnings	703	726	778	+7.1%	+9.6%	+9.4%
Net earnings per share <sup>(2)</sup> (in €)	6.42	6.68	7.20	+7.8%	+10.3%	
Funds from operations (cash flow)	1,514	1,542	1,695	+9.9%	+12.6%	
Capital expenditures (excluding Messer)	940	822	998			
Acquisition of Messer activities (net of divestments)			2,037			
Dividend distribution	330	327	391			
Shareholders' equity	5,219	5,079	5,374			
Net indebtedness	2,022	1,730	3,790			
Market capitalization as of December 31	12,673	13,998	14,849			

(1) Excluding variation of natural gas prices and impact of consolidation of Asian activities.

(2) Adjusted to take into account the bonus share issue of June, 2004.

(3) Subject to the approval of shareholders at the General Shareholders' Meeting.

**Other ratios**

(in %)	2002	2003	2004
Operating income/sales <sup>(1)</sup>	14.7	14.2	<sup>(1)</sup> 14.1
Net earnings/sales	8.9	8.6	8.3
Funds from operations/sales	19.2	18.4	18.0

(1) Excluding variation of natural gas prices and Messer.

# Highlights



■ **Boursoscan Trophy**  
for the best website in 2004.

## Air Liquide rewarded

- "Prix de l'Entreprise Européenne" in recognition of the Company's economic performance, market leadership and presence in Europe.
- "Grand Prix Boursoscan 2004" and "1<sup>er</sup> Prix de la Communication Financière" awarded by Boursorama, the most important financial information website in France, and the research and analysis firm TLB.
- "Prix ADEME" at the Pollutec fair for Turboxal, a water treatment system using oxygen.
- "Grand Prix Siemens de l'Innovation" for the Roller Pac fuel cell.
- Distinction awarded by Invest in France for the Group's long-term investments in Japan.

## Asia

- **January**  
Successes in flat screen technologies in Taiwan.
- **March**  
– Ultra-pure and specialty gases in the Philippines for SunPower, leader in the production of solar cells,  
– Signing of several engineering contracts in China.
- **June**  
– Success in the glass industry in Thailand,  
– Supply of oxygen to ZPSS, a major steel producer in China.
- **July**

Key contract with LGETA, one of the key electronics groups in China.

- **September**  
Strengthening of position in the flat screen market in Taiwan.

- **October**  
Presence at the "Challenge Bibendum" in Shanghai with a prototype service station using hydrogen to supply environmentally friendly motor vehicles.

- **December**  
Long-term contract with Li Dong Chemicals and investment in a large air separation unit in China.

## Americas

- **February**  
Contract with International Matex for on-site nitrogen production.
- **March**  
Revamping of air gases separation facility for NASA in Florida.
- **May**  
Contract with Texas Instruments for a new 300 mm fab and renewed contracts for other electronics sites.
- **June**  
Investment in Canada to increase nitrogen production capacity.
- **December**  
– Start-up of a new hydrogen unit for Chevron Texaco in El Segundo in California,  
– Pyrejet technology successes in steel operations in France, Russia and the United States.

## Europe

- **April**  
Launch of Trescal, a new metrology services pole in Europe.
- **May**  
– Contract to supply AMD's new 300 mm fab in Dresden, Germany,  
– Increased production capacity in Central Europe: Austria, Slovakia, the Czech Republic and Hungary,

– Sustainable development: for the first time, a global impact study of industrial pollution on health took place in Dunkirk.

- **July**  
– Contract to supply hydrogen for clean fuel production in Germany,  
– Success in sterilization for hospitals: Italy and Spain.

- **October**  
Inauguration of the first center for the outsourcing of sterilization services for surgical instruments in France.

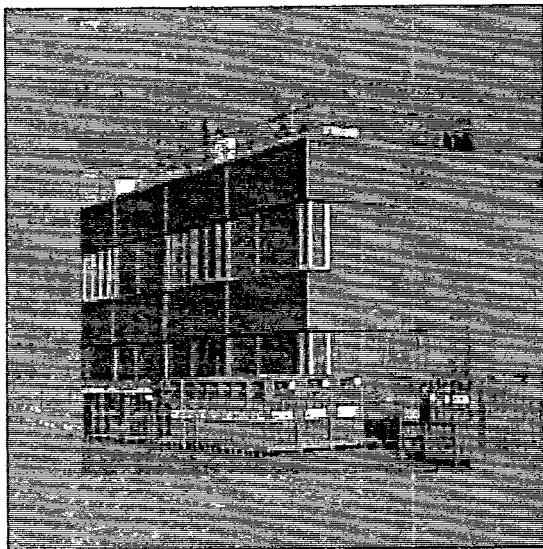
- **November**  
– A double success in the field of satellite technology,  
– Start-up of a new air gases separation unit in Trnava, Slovakia.

- **December**  
Expansion of Oberhausen's state-of-the-art air gases separation unit in the Rhine-Ruhr area.

## Africa and Middle East

- **February**  
Inauguration of the world's largest oxygen unit for Sasol in South Africa.

# A major acquisition



■ Rare gases production and conditioning site in Gellep, Germany.

Announced on January 20, the acquisition of Messer's activities in Germany, the United Kingdom and the United States was completed on December 3, in only 11 months. This includes obtaining the approvals from the competition authorities and realizing the announced divestments.

Overall, the Messer transaction, which constitutes a major strategic step forward for the Group, involved an initial investment of 2.7 billion euros. After making the required divestments, the total net investment is 2 billion euros for acquired sales of around 780 million euros over 12 months, in line with original estimates.

The operation's impact on net earnings is visible from the very first 12 months. The positive effect of synergies, estimated at 100 million euros over three years, will begin to show from 2005.

The operational integration of acquired activities is well advanced, and the management teams of the new entity were established according to their respective skills. Klaus Schmieder, until then Chairman of the Management Board of Messer, joined the Air Liquide Group as Executive Vice-President and member of the Management Board, with responsibilities over Europe.

World and European leader in industrial and medical gases, Air Liquide now becomes number two in Germany, Europe's leading economy, and obtains a well focused presence in the United Kingdom. The Group has considerably strengthened its presence in the United States, the world's largest economy, where it is currently positioned third in its sector, close behind the number two.



■ For the first time, apprentices at Air Liquide facilities in Germany, including those trained in acquired Messer entities, took part in a site visit together. A much-appreciated event!



# Two years into the new century

*From the start, Air Liquide has based its development on innovation, geographic expansion, creativity and initiative.*



## Origin

■ Foundation of the Company following the invention of a process for the liquefaction of air that enabled oxygen production in much greater quantities than previously possible. This, via the collaboration of two men, Georges Claude, a passionate researcher, and Paul Delorme, a diligent and far-sighted organizer.

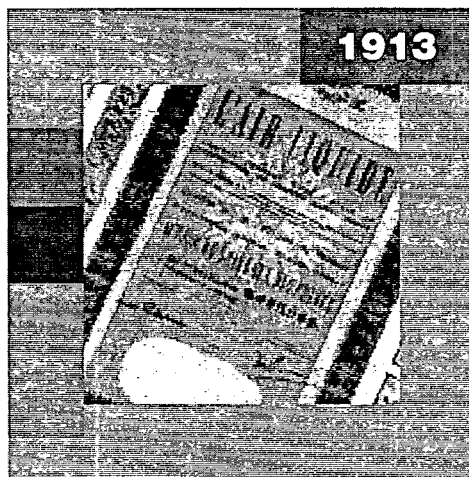
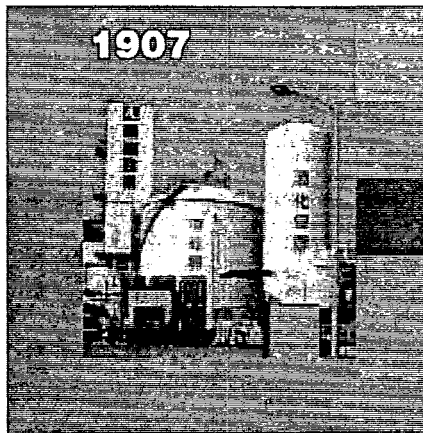


## Gases serving countless industries

■ All the way from welding to the environment, through diving, metals, chemistry, space, food processing, electronics, refining, etc.

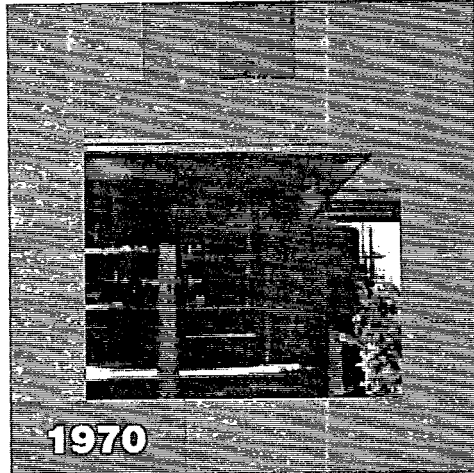
## International development

- From the earliest days, Air Liquide set its sights abroad.
- First, in European countries, then in Japan (1907) and in Canada (1911).
- First steps in the United States in 1916 and, in 1986, a major move into North America via the takeover of Big Three.
- Continuing expansion in Europe and Asia.



## Shareholders

- The original shareholders played a critical role in the first few years steadfastly standing by the expanding Company.
- Listed on the Paris Stock Exchange on February 20, 1913.
- A strong relationship was born between Air Liquide and its shareholders.
- In 1987, Air Liquide established the Shareholders' Communication Committee.
- Today, there are 350,000 individual shareholders of whom 130,000 are registered shareholders.



**A tradition of invention**

- Establishment of the Claude-Delorme Research Center,
- Scores of new processes in gas production and usage,
- From cylinders to cryogenics, through cogeneration, membranes, and the production of increasingly pure gases and certain specialty gases for electronics,
- Air gas production equipment now operates on a massive scale (4,200 tonnes of oxygen per day).



**Customer service**

- From 1985, full service for Electronics customers,
- After oxygen and nitrogen, the offer widens to include hydrogen and steam in order to become more efficient and protect the environment,
- From 1993, Air Liquide moves closer to customers deploying new structures throughout the world,
- Creation of specialized teams in major international markets.

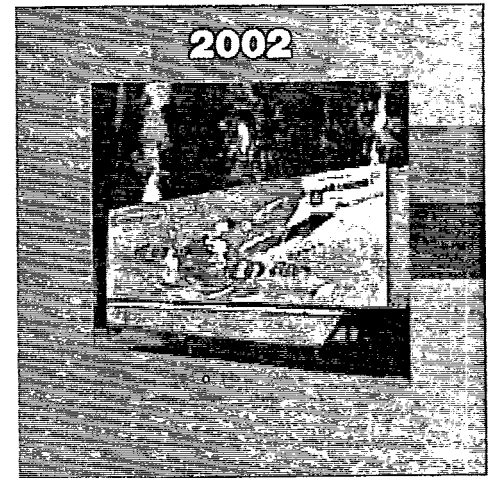
**Air for life**

- Originally, just a supplier to hospitals, Air Liquide became a true Healthcare specialist,
- Full range of service to hospitals,
- An expanding network of home-care teams,
- Creation of a dedicated entity in 1995: Air Liquide Santé,
- Expansion into hygiene.



**A century of adventures**

■ Innovation was the keynote for Air Liquide's anniversary year as the Group celebrated its 100 years of pioneering work in industrial and medical gases, and related activities.



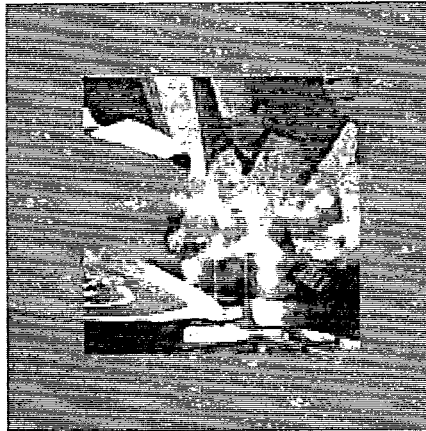
**New century, new momentum**

- Establishment of Japan Air Gases,
- Expansion through the acquisition of Messer activities in Germany, the United Kingdom, and the United States,
- Development in new markets and geographical zones,
- Today: 35,900 employees based in more than 70 countries.



# The Group's offer

Air Liquide: a wide range of markets and customers in more than 70 countries



## Industrial Customers

*Mission: providing services to an extremely rich and diverse customer base from craftsmen to research laboratories, food processing plants to motor vehicle equipment manufacturers, etc.*

### ■ Gases at the heart of processes

- Metal fabrication: cutting, brazing, welding,
- Metal processing: transformation, heat treatment,
- Food conservation: fresh or frozen,
- Analyses, metrics and laboratory work,
- Production of pharmaceuticals and fine chemistry,
- Electronic component assembly,
- Glass and enamel manufacturing,
- Pulp and paper bleaching.

### ■ On-site and remote management

- Production units at customer sites: greater flexibility and less transportation leading to a reduction in energy consumption,
- Remote management systems (Teleflo) ensure 24-hour monitoring of installations.

### ■ New services

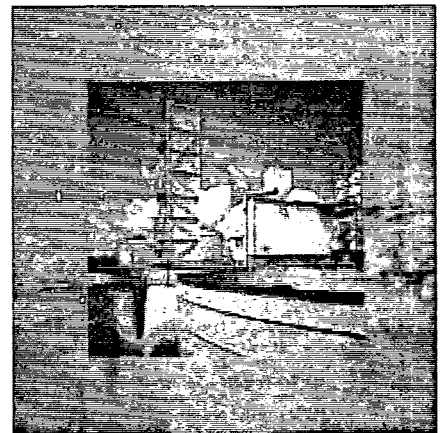
- Traceability: using electronic chips and bar codes,
- Product analysis: solid, liquid or gaseous, especially in relation to the environment,
- Metrology: verification and calibration of industrial measurement instruments.

## Large Industries

*Mission: offering gas and energy solutions to large industries around the world to improve their process efficiency and help them with their environmental responsibilities.*

### ■ Refining and natural gas

- Hydrogen is used more frequently by refineries to desulfurize fuels and "crack" heavy hydrocarbons,
- Oxygen is used to stimulate certain elements or to gasify petroleum residues. It is also used to transform natural gas into fuels or methanol.



### ■ Chemistry

The chemical industry consumes large quantities of air gases, as well as hydrogen and carbon monoxide. The latter is used in the manufacture of polyurethane and polycarbonates, which are both used in everyday life.

### ■ Metals

- Improvement of steelworks productivity, energy efficiency and emission levels using oxygen,
- Transportation of pulverized coal to furnaces using nitrogen,
- Stainless steel manufacture using argon.

## Healthcare

*Mission: supporting patients in hospitals and in their homes through a range of services, devices and equipment.*



### ■ Hospital services

- Services related to the supply and distribution of gases in hospitals,
- New services: medical equipment sterilization, tissue cryoconservation, etc.

### ■ Pharmaceutical gases

Medical gases (nitrous oxide, oxygen) are pharmaceutical products. Development of new therapeutic applications for gases in hypertension control, pain management, etc.

## Electronics

*Mission: supplying the semiconductor industry, a user of leading-edge technologies, with ultra-pure gases and fluids.*

### ■ Ultra-pure fluids

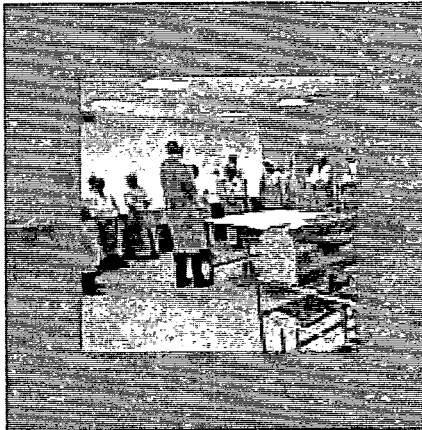
Carrier gases (nitrogen, oxygen, hydrogen, argon, helium, etc.), specialty gases (silane, etc.), chemical liquids: the fluids used in fabs are ultra-pure. New molecules are constantly being developed.

### ■ Fluid management

Teams working at customer facilities take full charge of managing fluids on-site.

### ■ Equipment

Design, manufacture and installation of fluid distribution equipment.



### ■ Homecare

Treatment of respiratory illnesses, sleep apnea and diabetes: providing oxygen and appropriate materials, ongoing patient follow-up, emergency response service.

### ■ Hygiene

Broad range of disinfection products and services to fight nosocomial infections.

### ■ Equipment

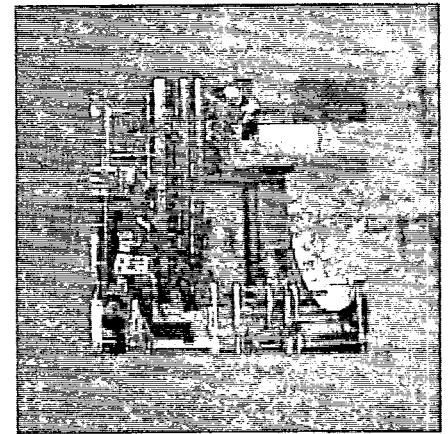
- Gas distribution systems,
- Anesthesia and resuscitation equipment.

## Related Activities

*Mission: developing competencies in fields complementing the Group's core expertise.*

### ■ Welding-cutting equipment and products

- Complete range of materials (welding units, metal cutting machines) and consumables,
- Automation solutions.



### ■ Engineering and construction

- Design and construction of industrial gas production units for the Group and third-party customers,
- Development of new production technologies,
- Development of state-of-the-art cryogenic equipment, especially in relation to very low temperatures.

### ■ Space and aeronautics

- Ariane 5: building cryotechnical tanks, supplying of gas and related services to the Kourou (French Guyana) launching pad,
- Satellite equipment,
- On-board gas generating systems for airplanes.

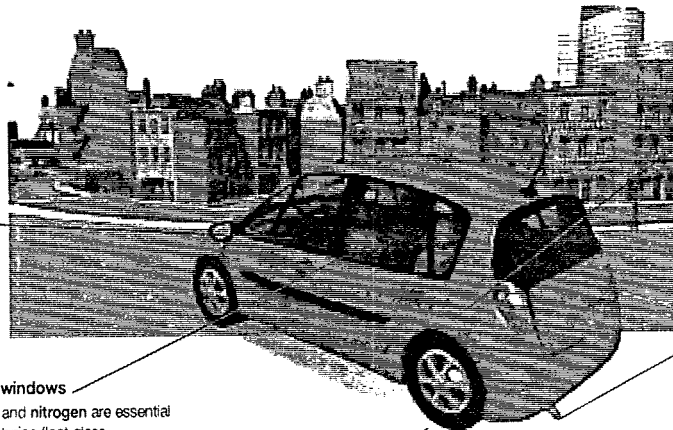
### ■ Specialty chemicals

Surfactant products for pharmaceuticals and cosmetics.

### ■ Diving

Products and equipment for professional and recreational diving.

# Air Liquide and the automobile



## Airbags

Pressurized argon or helium is increasingly used to fill airbags, a safer alternative to pyrotechnic inflators.

## Car windows

Hydrogen and nitrogen are essential in manufacturing float glass. Oxygen is used increasingly in manufacturing glass, improving combustion and reducing emissions. The process is more environmentally friendly and energy efficient.

## Tires

Nitrogen is used increasingly to fill tires. The polymers in tires are less permeable to nitrogen than to the oxygen in the air, so tires remain inflated longer. The inert gas also extends tire life and reduces fuel consumption. Nitrogen's inert properties are also put to use in the rubber curing and tire molding phases. Cryogrinding can be used to recycle tires: liquid nitrogen cools the tires before they are ground.

## Fuels

Current regulations promote the use of fuels that contain less sulfur. Using hydrogen, sulfur can be extracted to produce "green" fuels. This avoids sulfur dioxide emissions, which are responsible for acid rain, and increases the life of catalytic exhaust systems.

## Emission control

Highly precise gas mixtures, containing minute quantities of each component, are required to calibrate vehicle air pollution monitors. These controls help reduce exhaust emissions.

## Motor and mechanical parts

Highly technical mechanical parts (gears, pinions, injectors, linkages, etc.) require controlled atmospheres for their manufacture or heat treatment: nitrogen, hydrogen, argon, helium. Oxygen is used in the manufacture of antifreeze. Radiator and air conditioner watertightness is often tested using helium to avoid leakage of harmful coolants into the atmosphere.

## Electronic components

With the widespread availability of driving and safety support tools (ABS, on-board computers, GPS, etc.), electronic chips are used increasingly in automobile manufacture. Chip manufacturing requires extremely pure specialty gases (silane, etc.) and carrier gases (nitrogen, hydrogen, argon). Nitrogen-based protective atmospheres are used when assembling components on motherboards.

## Headlights

Rare gases (argon, xenon, krypton) protect the filament in headlight bulbs. Krypton and xenon headlamps emit a non-blinding, high-intensity light, which gives drivers a better view of the road and makes vehicles more visible to others. This technology improves road safety.

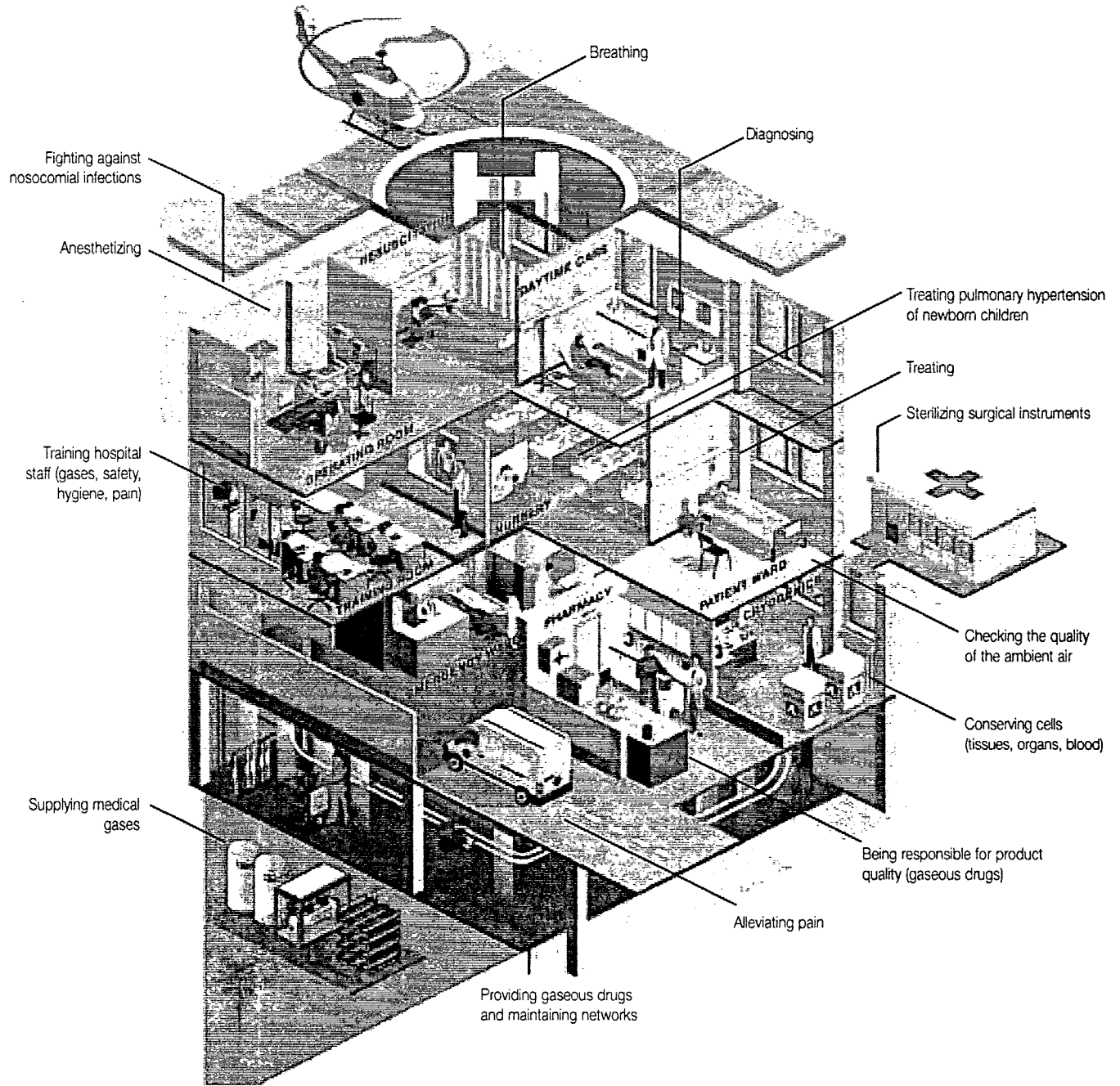
## Plastic materials

Without gases, there would be no plastic materials! These reactants are essential in producing the main polymers. Carbon monoxide and hydrogen help produce the polyurethane foam that fills seats and dashboards. Nitrogen-assisted injection is used to mold many of the parts. A neutral gas, nitrogen is blown into the mold, providing the final shape without altering or modifying the plastic material properties.

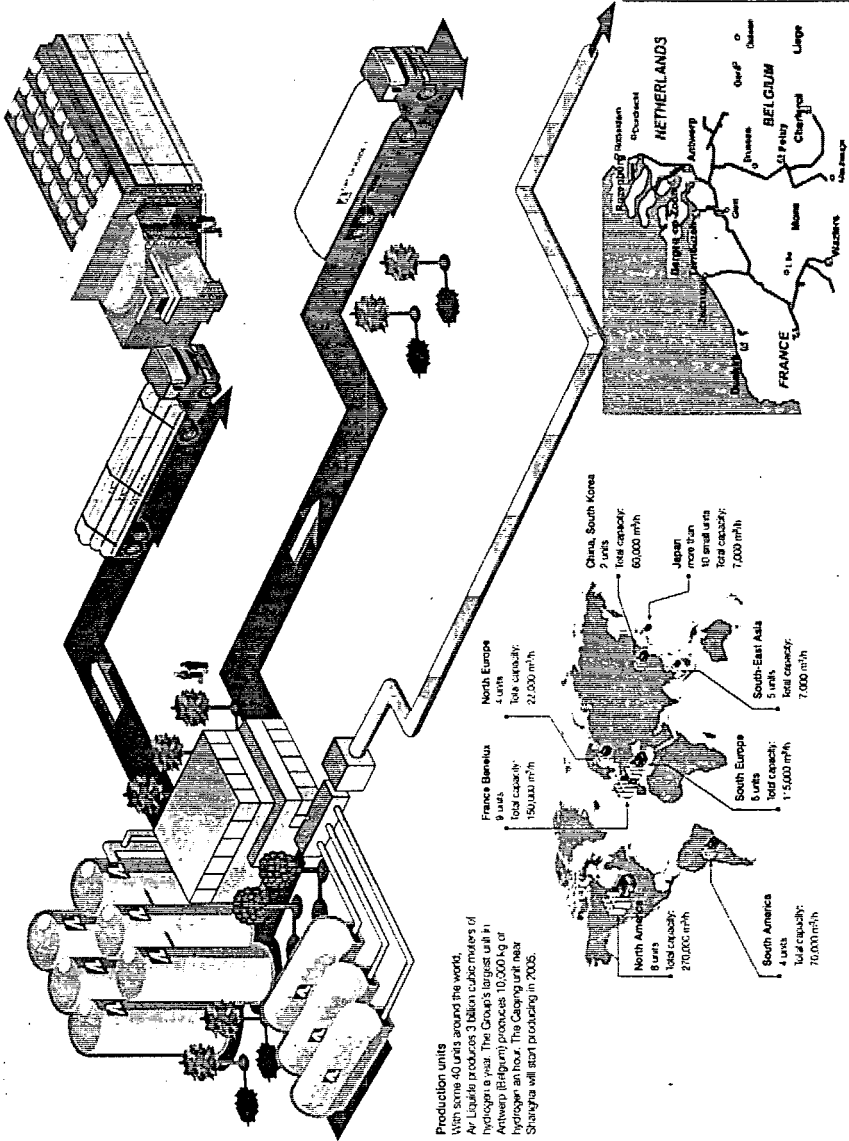
## Car bodies

Steel is the main component in car bodies. Oxygen is used in steel manufacturing, in particular to reduce emissions (nitrogen oxides), hasten combustion, and make the process more eco-friendly. Argon is used to produce stainless steels. The mechanical characteristics of steel plates are improved by manufacturing them in a protective atmosphere made up of nitrogen and hydrogen. During the vehicle assembly process, the latest technologies (laser, plasma) are used to weld the many seams, again in protective atmospheres created using argon, helium and other gases.

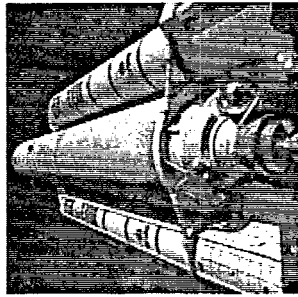
# Air Liquide and healthcare



# Air Liquide and hydrogen: from production to use



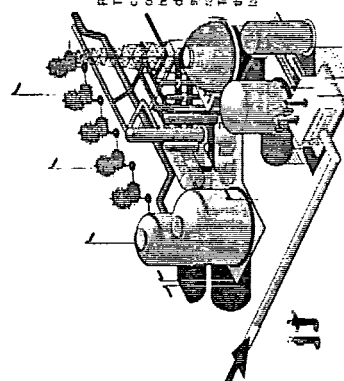
**Industry**  
Hydrogen is an indispensable component in the manufacture of glass, semi-conductors, and other materials. It is also used to produce liquid or compressed gas form.



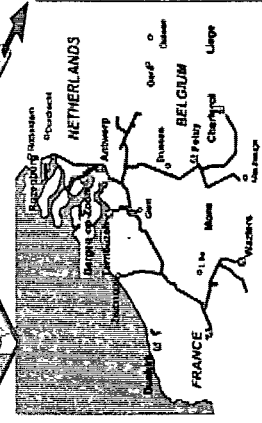
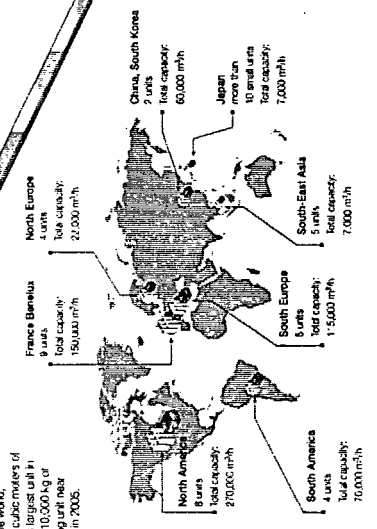
**Ariane Rocket**  
Liquid hydrogen, delivered by semitrailer, is one of the fuels used in the Ariane Rocket. With oxygen as the combustion agent, it produces water and energy. The 25 tons of hydrogen loaded at -253°C power the rocket's main stage.

**Pipeline system**  
Air Liquide supplies hydrogen to 18 hydrocarbon refineries, steel plants, petrochemical plants, and 115 pipelines. Covering over 1,700 kilometers, Air Liquide's hydrogen pipeline system is the largest in the world.

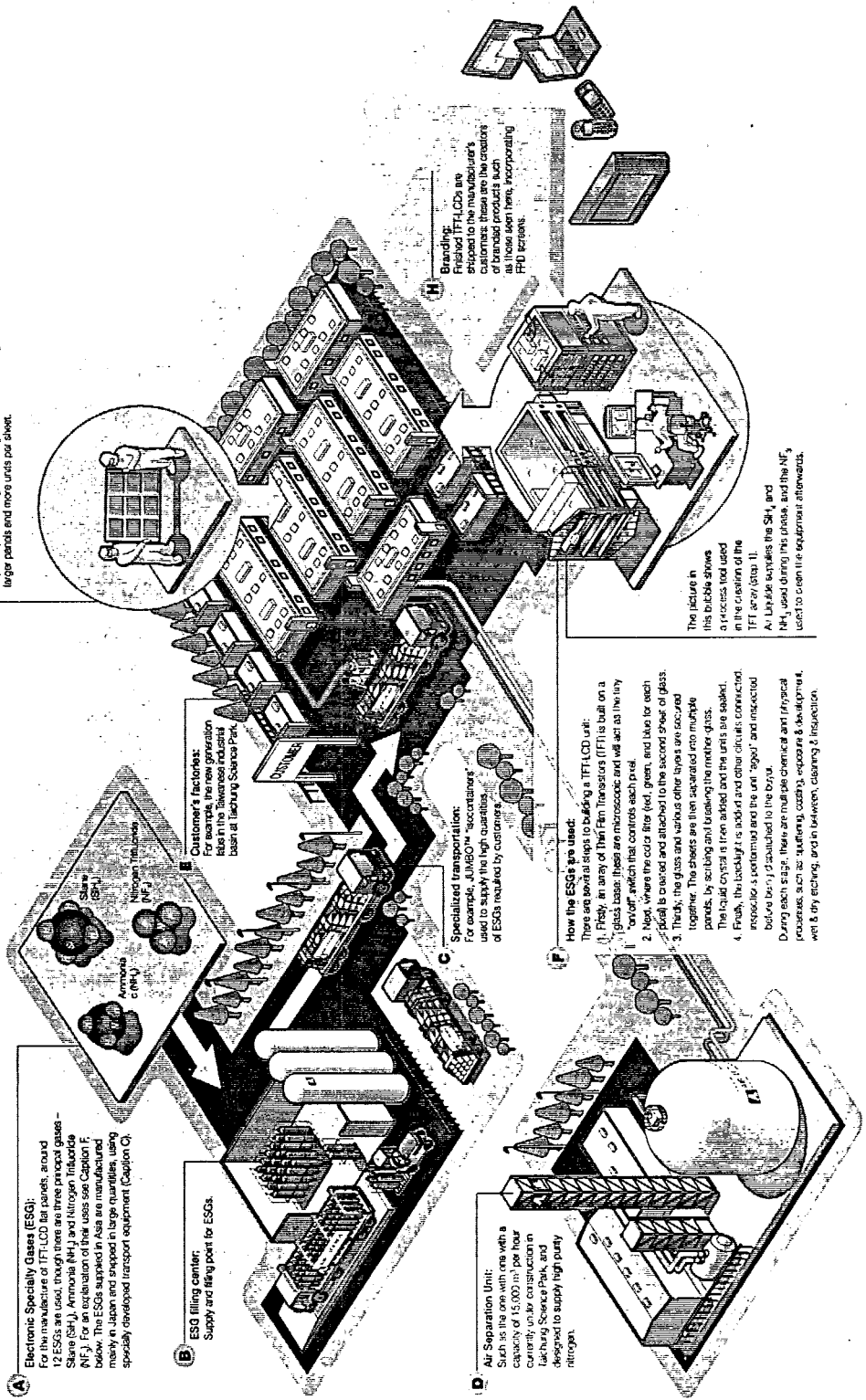
**Refining**  
The quality of fuels is improving continually, as is their impact on the environment. Present in hydrocarbons, sulfur breaks down catalysts in industrial systems. It is also a major cause of air and breathing difficulties for people in the vicinity of refineries. The production of 7 tons of high-purity hydrogen.



**Production units**  
With some 40 units around the world, Air Liquide produces 1.6 million tonnes of hydrogen annually. The Air Liquide plant in Airsen (Germany) produces 10,000 kg of hydrogen an hour. The Calgary unit near Shanghai will start producing in 2005.



# Air Liquide and flat panel displays



**G TFT-LCD mother-glass:**  
Once all the layers are assembled, the sheets known as the "mother-glass" are cut up into individual panel units before the liquid crystal is added and each panel is tested. As the technology advances, successive generations of plants produce larger mother-glass sheets, measuring larger panels and more units per sheet.

**F Customer's factories:**  
For example, the new generation also in the business industrial base at Tachung Science Park.

**A Electronic Specialty Gases (ESG):**  
For the manufacture of TFT-LCD flat panels, around 15 ESGs are used, such as Argon, Neon, Nitrogen, Silane (SiH<sub>4</sub>), Ammonia (NH<sub>3</sub>) and Nitrogen trifluoride (NF<sub>3</sub>). For an explanation of their uses see Caption E below. The ESGs sampled in Asia are manufactured mainly in Japan and shipped in large quantities, using specially developed transport equipment (Caption C).

**B ESG filling center:**  
Supply and filling point for ESGs.

**C Specialized transportation:**  
For example, JUMBO™ "succubans" used to supply the high quantities of ESGs required by customers.

**D Air Separation Unit:**  
Such as the one with one with a capacity of 15,000 m<sup>3</sup> per hour currently under construction in Tachung Science Park, and designed to supply high purity nitrogen.

**F How the ESGs are used:**  
There are several steps to building a TFT-LCD unit:  
1. Firstly, an array of Thin Film Transistors (TFT) is built on a glass base. These are microscopic and will act as the tiny "switch" which controls each pixel.  
2. Next, where the color filter (red, green, and blue for each pixel) is created and attached to the second sheet of glass.  
3. Thirdly, the glass and various other layers are secured together. The sheets are then separated into multiple panels, by scrubbing and leveling the mother glass.  
4. Finally, the liquid crystal is added and the units are sealed. The liquid crystal is added and the units are sealed. The liquid crystal is added and the units are sealed. The liquid crystal is added and the units are sealed.  
During each stage, there are multiple chemical and physical processes, such as: sputtering, coating, exposure & development, wet & dry etching, and in between, cleaning & inspection.

**H Branding:**  
Finished TFT-LCDs are shipped to the manufacturer's customers: these are the creators of these screen phone, incorporating PFD screens.

The picture in this bubble shows a process used used in the cleaning of the TFT array (step 1).  
A: Liquid cleans the SiH<sub>4</sub> and NH<sub>3</sub> used during this phase, and the NH<sub>3</sub> used to clean the equipment afterwards.





# Sustainable development

*Sustainable development aims at “giving values to progress” by combining long-term wealth creation, consideration for individuals, and preservation of the environment.*

Thanks to the loyalty of its shareholders, Air Liquide has been successfully trading under the same name for more than 100 years, building mutually beneficial long-term relationships with customers, and continuously developing new, innovative, value adding products that are respectful of the environment. Air Liquide's activities are thus, by nature, consistent with sustainable development, which constitutes a key dimension in the Company's strategy.

The Group's distinctive approach to sustainable development centers on four dimensions:

- **Developing the potential of men and women** of the Company in their commitment to common objectives.
- **Creating value for shareholders** by developing the Company's business performance over the long term and with transparency.
- **Preserving life and the environment** in Group operations and at customer sites.
- **Innovating for tomorrow** to guarantee the advancement of the company and its customers.

At the end of this report, a specific section presents the Group's sustainable development indicators and objectives.



TRAINING



VALUES



PROGRESS



ENVIRONMENT



SAFETY



INNOVATION



COMMITMENT





**Fabienne Mignonac**  
 International Development  
 Manager - Group Human  
 Resources

*What does diversity mean at Air Liquide?*

The Group's diversity is expressed in a range of nationalities, abilities, profiles, experiences, and also in terms of gender balance. Our diversity mirrors the multiplicity of our customers around the world, their needs, and the solutions we offer them.

*How does the Group foster diversity?*

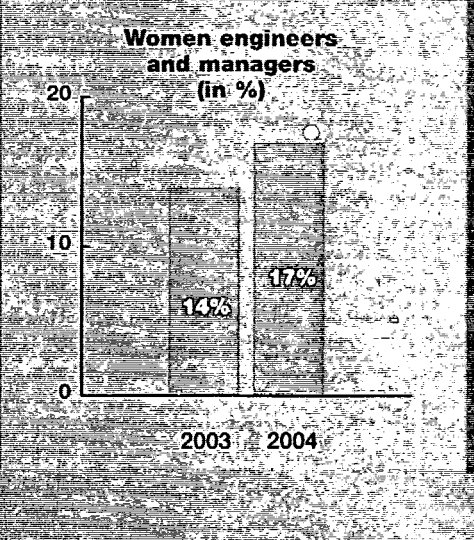
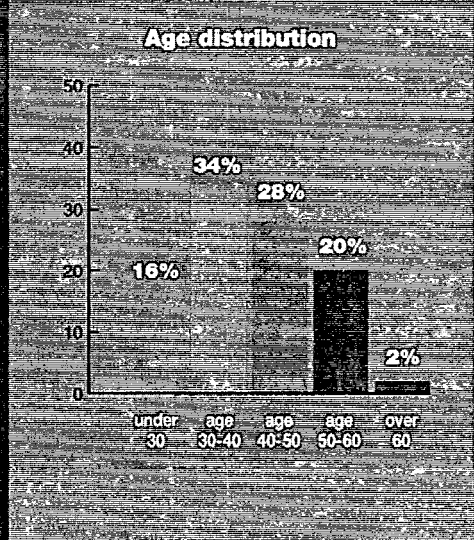
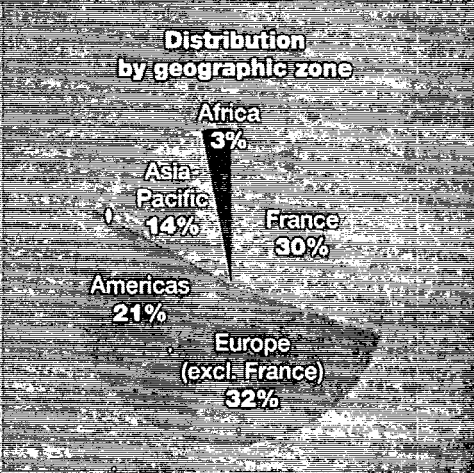
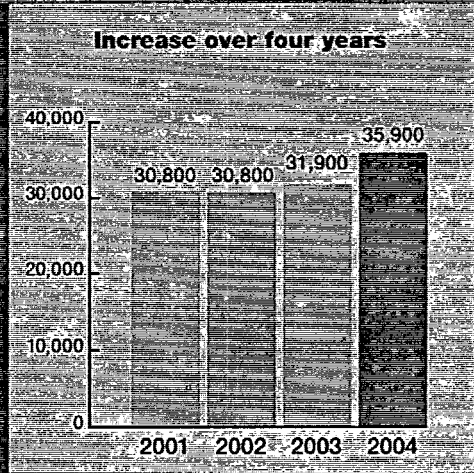
This is an on-going challenge for the human resources team. In 2004, for example, we set out to acknowledge our technical experts who contribute to strengthening the Group's innovation capabilities. We also worked on improving the career development conditions for women.

*What is the link across these differences?*

Diversity is a valuable asset to the Group. When I interact with employees from different countries, what always strikes me is the extent to which we share the same Air Liquide values: diversity, responsibility and autonomy.

**Indicators**

**Total Group employees**



# Developing the potential of men and women

## Increasingly international teams

Air Liquide considers its teams' international makeup an essential asset because it strongly believes that vitality springs from diversity. Multiculturalism is the norm in many of our teams. The Executive Committee, for instance, draws its members from six different countries, and nearly all of the Group's 150 senior managers, originating from 21 countries, have international experience.

The Group initiated two programs in order to attract young international talent and promote diversity. The Start program is designed to recruit recent graduates from major educational institutions across the world by giving them the opportunity to take on a first assignment outside their native country. In 2004, 26 participants benefited from this program. In addition, every year, through a second program called International Internship, Air Liquide welcomes about 30 students of different nationalities in their senior year at school for an internship of several months in Paris, Grenoble, or Houston. Since 2002, about ten of them have joined the Group.

## Promoting women

Diversity also means achieving a better balance between men and women. Air Liquide is working to increase the number of women in high-level positions. In France, a working party composed of human resources managers from different entities put forward practical measures in an action plan scheduled for implementation in 2005. Step by step, women are advancing within the Group, and in 2004, they accounted for 21% of employees considered to have "high potential", which is more than twice the number compared with 2000.

In the United States, a number of women have taken on major responsibilities in production in 2004. In European support teams, they represent nearly a third of the workforce, and in 2004, more than half the new hires were women.



**Steffen Richter**  
Starting off in Japan

"After completing my studies in thermodynamic engineering, first at the University of Dresden and then at the Tokyo Institute of Technology, I was offered a position in 2002 through the Start program with Air Liquide's Japanese subsidiary. After working there on logistics for cylinder and liquid gases, I joined the Japan Air Gases integration team, before returning to Germany in early 2005. Thanks to this experience, I learned a great deal about the technical aspects of this line of work, how to bring about business integration, and how to work in a very different cultural environment. This knowledge will help me continue to evolve within the Group, as I take on new assignments, perhaps once again abroad."



## O'Pluriel

O'Pluriel is a network of Air Liquide women that provides a forum for exploring ideas on the role of women in professional life and for exchanging views on practical issues. Launched in 2002 and initially centered on France, O'Pluriel now boasts some 50 members and is backed by the Group's Vice-Presidents for Human Resources and Communications. This network is an incubator for ideas intended to promote effective collaboration between men and women.

**Mission: to contribute toward the success of Air Liquide!**



**Richard Pawulski,**  
**Senior Expert – An international career in the technical field**

“To me, the title of Senior Expert means two things. First, on a personal level, it recognizes my engineering abilities in the field of design and safety of air separation units. Furthermore, it shows Air Liquide’s acknowledgement of how important technical expertise is in ensuring the Group’s development. This strengthens my connection to the Group which has been guiding my career for 20 years now, from San Francisco to Paris, via Houston, Newport and Montreal, a long-standing commitment, since my father worked for Air Liquide for over 40 years, as an expert in air separation procedures and technologies.”

**Management or technical expertise: to each their own path**

Professional competence is a core value at Air Liquide. Whether one is dedicated to management or to a technical field, expertise gives everyone the opportunity to grow within the Group.

A Technical Career Ladder, first introduced in the Group in 2002, and then in several countries in 2004, includes four levels: Expert, Senior Expert, Fellow, and Senior Fellow. Thanks to this program, technical specialists can progress within the Group and gain recognition to match their achievements, without having to choose a career in management.

A second group was appointed in 2004 bringing the number of Experts to 272 and Senior Experts to 64, with 17 nationalities represented. Two new members also joined the group of 15 existing Fellows. Each year, about thirty of these experts have the opportunity to attend a week-long seminar at the Massachusetts Institute of Technology (MIT), the world-renowned university in Boston, United States, that specializes in leading-edge technologies.

The first such seminar took place in January, 2005, with a customized program facilitated by MIT professors and members of Air Liquide’s Executive Committee. This program is the counterpart, in the field of technology, to the management seminar held each year at INSEAD (the international management school near Paris, France). In 2004, 31 managers from 18 countries attended this high-caliber management program focusing on international development.

**Mobility: a career on the move**

The Group aims at having 100% of its employees meet their direct supervisor once a year for an evaluation interview to consider employees’ competencies and professional evolution. In 2004, 70% of all employees took advantage of this policy. The Group also provides each employee the opportunity to meet a human resources manager every three years to plan their career development.

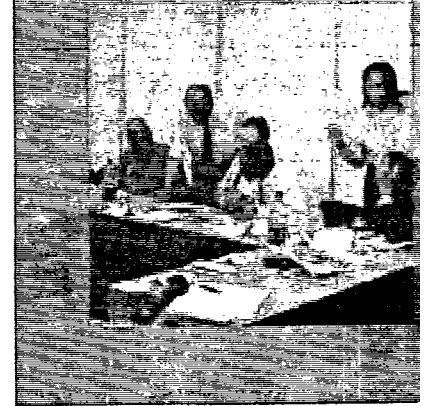
**Two new Fellows**

At a ceremony held in Paris on October 8, 2004, the Air Liquide Fellows welcomed two new members. The Senior Experts appointed in 2004, each received a certificate of recognition on this occasion.



### ■ Professional development

Training is deliberately decentralized to respond better to each entity's needs and special requirements. The budget allocated to professional development accounts for about 3% of Air Liquide's total payroll, which is higher than the regulatory requirements in effect in countries where the Group has operations. Training is a crucial element in the Group's strategy.



Indeed, geographic and professional mobility are greatly encouraged. Many bridges connect business sectors or entities within the Group, and it is possible to move from a technical sector of activity into management or sales.

Several initiatives have been undertaken to foster this spirit of mobility and to publicize these opportunities as widely as possible: a job fair on the Intranet France, career development forums in the United States, career advancement days in Germany, etc.

### Sharing knowledge and know-how

Teams gain in efficiency and responsiveness by pooling information and knowledge. To circulate best practices and facilitate networking, Air Liquide has created a Knowledge Management tool on the Group's Intranet. This bank of information, accessible via a search engine, is organized by functional areas - quality control, marketing, sales, finance, training, etc. - and operational areas - activities and countries. It is also a forum where an employee can check to see if anyone else around the world has already found a solution to a common problem.

### Compensation

Rewards to employees are based on personal competency and contribution to the Company's financial performance. Thus, for 40% of Group employees, a varying portion of salary (excluding profit-sharing) is linked with individual and team performance and Air Liquide or entity results. In its remuneration policy, Air Liquide ensures that men and women are treated equally.

### Employee equity investment

Over 40% of Group employees own shares in the Company, holding 0.86% of the capital. Employee equity investment strengthens involvement and long term interest in the Group's performance. Since 1986, eight increases in capital stock have been reserved for employees, expanding steadily to include all teams around the world.

Stock options provide additional motivation for those who contribute in a significant way, given their level, to the Group's development.



### Sales school in France

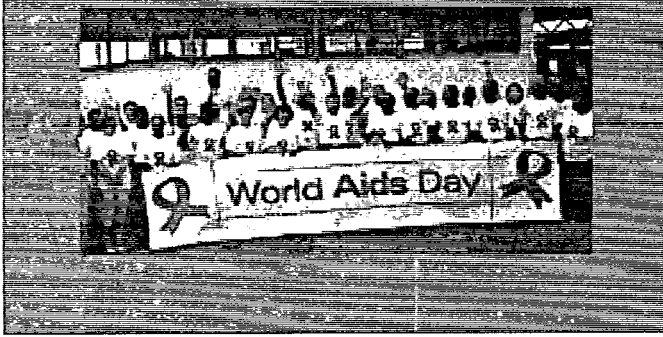
As part of a plan to revitalize its sales teams, the French entity *Gaz Industriels Services* created a specialized sales school (*École des Solutions Air Liquide - ESAL*) in late 2004. This program offers instruction on sales techniques with personalized coaching. By 2006, the entity's entire sales force (450 individuals) will have received this training.



### Project management

Running a project is not something you can make up as you go along. In 2004, the Group developed a generic methodology for project management. This model was adopted very quickly by the Italian subsidiary and adapted to meet its specific requirements. The South Korean subsidiary integrated it with minor changes, and so forth. Result: a project management culture is gradually gaining momentum in the Group.





### ■ Fighting AIDS, South Africa

The Air Liquide subsidiary in this country is highly involved in the fight against AIDS, first and foremost within its own teams. In addition to significant information programs, employees can be tested, if they wish to, and receive personalized support if necessary. Outreach campaigns also take place, especially through various programs giving support to associations that assist AIDS victims.

### Professional and cultural integration

Acquiring a business, setting up a joint venture, rapidly expanding a business... all situations Air Liquide faced in 2004, and in which effectively managing human resources is crucial. Here are three examples.

To successfully integrate the Messer teams in Germany, Air Liquide relied on the best talents available in both companies: the new management team is very well balanced in this respect. Very quickly, with guidance from specialized consultants, an intercultural integration plan was implemented to bring about mutual understanding among the teams. "Career advancement days" were also organized during which business or subsidiary managers presented over 130 job openings in Europe. Many employees took this opportunity to learn more about Air Liquide, interact and exchange with colleagues from other entities, and begin networking. As evidence of the Group's international commitment, some 20 employees took the plunge and decided to take a position in another country.

Japan Air Gases (JAG), a joint venture between Air Liquide (55%) and BOC (45%), is now the number three supplier of industrial gases in Japan. To strengthen its position, it relies on team motivation and solidarity, hence the desire to foster a true JAG culture. Around 30 local teams worked on this issue in 2004, and all employees were surveyed on their perceptions and expectations. The record response rate (80%) showed how much interest teams had in this project. Results were posted on the Intranet and show that there is room for improvement, in particular in the areas of communication, efficiency and employee participation in corporate results. Action plans will address these issues in 2005.

The Group's rapid development in China was paralleled by an unprecedented level of recruitment: over 200 people were hired in 2004, mostly technicians, engineers or unit managers. Air Liquide currently has close to 1,400 employees in China. Several programs were implemented to manage this rapid influx of human resources. Twice a year, a welcome seminar allows new engineers from various regions and entities to learn about the Group's different activities: when visiting large sites, they meet with managers who acquaint them with Air Liquide (its history, business lines, structure, strategy...) and its career opportunities. Other initiatives, focused on sports and leisure activities in particular, aim at developing team spirit. The magazine "Air Liquide in China" is a valued way of bringing people closer together and providing information on teams' activities. All of these initiatives contribute to motivating employees and strengthen their feeling of belonging within the Group.



### ■ Japan Air Gases, Japan

A successful integration with a new common culture.



### ■ Solidarity, Brazil

For the past several years, the whole team at the Air Liquide site in Sertãozinho has been involved in collecting clothing and food for the destitute.

## Corporate responsibility

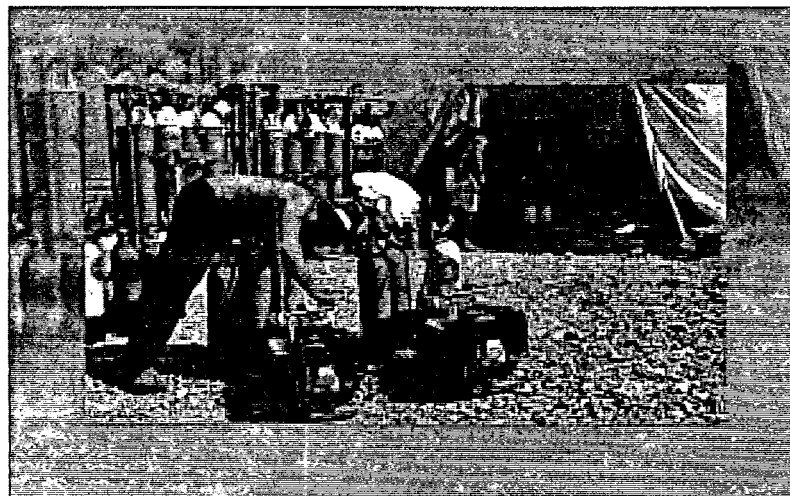
### A citizen of the world...

Independent, yes, but certainly not indifferent. Although very faithful to its principle of independence from political and non-professional organizations, Air Liquide is definitely concerned about the development of the world around it. It adopts a responsible attitude by complying with the regulations in effect in each country or region of the world, and supports the social initiatives of its local teams. It also supports a number of corporate patronage initiatives, in particular in the field of preservation of the environment and of life in general.

The enlargement process of the European Union and the Group's recent acquisitions were taken into account when creating the European Group Committee, which now counts 25 members from 14 countries. On a world scale, the Group adheres to the chemical industry's Responsible Care commitment. In France, it is a member of the association *Entreprises pour l'Environnement (EPE)* (Companies for the Environment) and the *Observatoire sur la Responsabilité Sociétale des Entreprises (ORSE)* (Study Center for Corporate Social Responsibility). Many subsidiaries have adapted Air Liquide's operating principles into specific codes of conduct. The Group established a charter of ethics for purchasing: suppliers must be assessed openly and fairly, and are expected to comply with Air Liquide's commitment to sustainable development, particularly in the areas of safety, preservation of the environment and respect of people.

### ...who acts locally

In the field, Group teams initiate many actions demonstrating their own involvement, and that of Air Liquide, in community life. Many sites organize open days and information campaigns for neighboring residents. Every year, thousands of employees around the world participate in charitable or humanitarian campaigns. Assistance to victims of the earthquake in Niigata, Japan, to those of the tsunami in South Asia, to cancer patients in Korea (Terry Fox Run), to needy people in Canada (Centraide/United Way), contribution to research on genetic diseases in France (Telethon), etc. These are but a few examples.



**ASPI Eurozone Index**  
Air Liquide is one of the 120 companies included in the ASPI (Advanced Sustainable Performance Indices) Eurozone Index established by Vigeo, an independent rating agency for corporate social responsibility. These 120 companies were chosen for their sustainable development performance.

**Storebrand**  
This large Norwegian investment fund placed Air Liquide among the best companies for its environmental and social performance.

### ■ Scientific mission, Clipperton

From December, 2004, to March, 2005, Air Liquide participated in the scientific expedition led by Dr. Jean-Louis Etienne on Clipperton Island, west of Mexico. The aim of this mission, which brought together some forty scientists, was to study biodiversity and the effects of human activity on terrestrial and aquatic flora and fauna. Air Liquide contributed to the expedition by providing diving equipment and gases, medical oxygen, emergency equipment, air compressors, a hydrogen fuel cell to produce electricity and also liquid nitrogen to preserve samples.





**Emmanuel Jayr**  
Shareholders'  
Communication Committee

*Why join this Committee?*

Being a shareholder is part of my family tradition. Very early in life I became aware of the importance of investing in reliable companies in order to obtain long term financial returns. Furthermore, I am particularly interested in this Group's approach to marketing because I work in the field of communication, and being involved in this Committee has therefore been both a personal and a professional experience.

Individual shareholders are a diverse group of people sharing a mutual ambition to participate in the life of the Company, and our discussion groups mirror both this diversity and shared commitment. Within a few months, we have contributed to creating the Shareholder's Guide, devising ways to increase individual shareholding, editing Company magazines and preparing information meetings outside Paris.

*Can you tell us about your work?*

Our role is to listen, respond, and make suggestions to improve communication tools. The Committee is a link between shareholders and the Company, a basis for mutual trust.

*Can you give us a snapshot of your accomplishments after two years?*

First of all, Air Liquide is a unique Company, especially when it comes to its relationship with individual shareholders. It has been a very enriching experience for me to have the opportunity to discuss company and shareholders' issues directly with senior management, and I'm always amazed at the level of attention we get in meetings from teams when we volunteer comments or make suggestions on selected topics. In my view, few companies devote as much time as Air Liquide to listening to their shareholders' opinions.



**■ Shareholders' Communication Committee**

From left to right, top to bottom. Sabine Benoit, Laurent Coupier, Jean-Claude Cuisinier, Bernard Dick, Vincent Gaffiot, Emmanuel Jayr, Michel Maillon, Christopher Neves, Claude Negrotto, Dominique Reuter\*, Marc Serre, Dominique Vigneron.

\* Representative of the employee shareholders  
Composition as of the date of the 2005 General Shareholders' Meeting.

# Creating value for shareholders

## Consideration and respect for all shareholders

Consideration for shareholders has been a core value of the Company for more than 100 years. Principles of shareholder entitlements and equality, and the absence of shares with double-voting rights, for instance, reflect such consideration. In addition, as Air Liquide maintains preferential subscription rights, in the case of a public issue, current shareholders are entitled to priority treatment in proportion to the number of shares they hold. Finally, Air Liquide has not adopted anti-takeover bid measures: its performance over the long term and the loyalty of its shareholders constitute its best assets.

## Listening to and informing shareholders

### The Shareholders' Communication Committee

The Committee, created in 1987, embodies Air Liquide's commitment to listen to its shareholders and to treat them with respect. Its 12 volunteer members work with Benoît Potier, Chairman of the Management Board, to improve the quality of the relationship between Air Liquide and its individual shareholders in areas of communication and information.

The Committee is a think tank and a source of inspiration, and is a representative sample of individual shareholders. It functions as an important link between Air Liquide and individual shareholders by giving a voice to their questions and expectations.

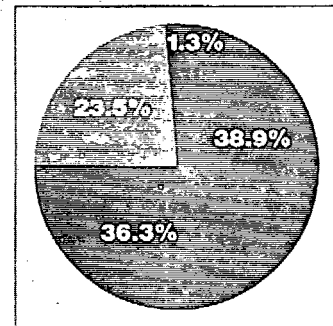
In 2004, the Committee held three plenary sessions with all members present. Additional meetings took place bringing together some committee members and members from Air Liquide's Communication and Shareholder Services teams. These sub-committees concentrated on the following issues:

- communication tools,
- the video presentation of the General Shareholders' Meeting,
- shareholder documentation,
- the information meetings outside Paris,
- enlarging the individual shareholder base.

The Committee also visits Air Liquide sites in order to better understand the Group's business lines and activities. In 2004, it made a visit to Cryospace which develops and produces the cryotechnical tanks (oxygen and hydrogen) for the Ariance 5 launcher.

## Indicators

### Share ownership as of December 31, 2004



- Individual shareholders
- Foreign institutional investors
- French institutional investors
- Treasury shares

**350,000** individual shareholders

**30%** of shares registered

**0.9%** of capital held by Group employees

To the Company's knowledge, no shareholder holds more than 5% of the capital.

**N° Vert 0 800 16 61 79** (Toll-free number)

■ 24/7: shareholders can check the current share price, the Group's financial information and latest news, or leave a message.

■ 8:30 am to 5 pm (Paris time): shareholders can talk to a Shareholder Services team member.

The service is accessible internationally at:  
+ 33 1 57 05 02 26

In 2004, more than 80,000 calls were received on this line.



### Meetings with shareholders

Through the General Shareholders' Meeting, the Salon Actionaria and other information meetings outside Paris, Air Liquide maintains a direct, valued dialogue with shareholders.

#### ■ Another success for Actionaria

Air Liquide's participation in the 7<sup>th</sup> edition of the Salon Actionaria, a shareholders' fair held in Paris each year, was another great success, with over 32,000 people visiting the stands of the various companies present. Attending the Salon is always a high point for our teams, our shareholders, and all those interested in the Group. Air Liquide presented a broad range of its activities with product displays, special focus meetings, games and laboratory experiments with its gases. Shareholder Services team members were also on hand to answer questions from shareholders and from the general public.

#### General Shareholders' Meeting 2004

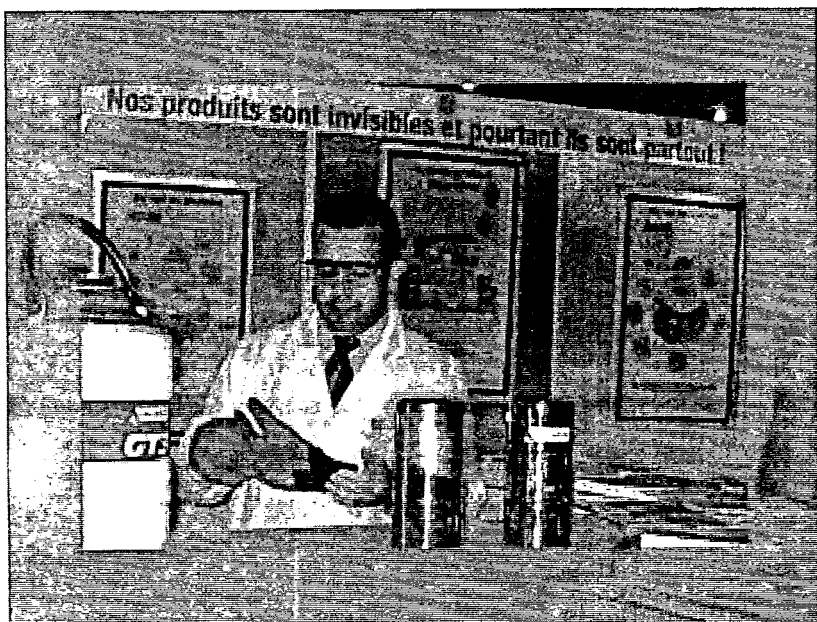
Shareholders with voting rights were invited to participate in the General Shareholders' Meeting, a special opportunity to interact with Air Liquide's senior management and to share in the decision-making process by voting on the resolutions proposed. To facilitate shareholder involvement, Air Liquide sends out the Notice of the General Shareholders' Meeting and the Shareholders' Guide - Summarized Annual Report to all shareholders regardless of the numbers of share held or the form of shareholding. The General Shareholders' Meeting, held at the Palais des Congrès on May 12, 2004, was again very well supported.

■ 4,300 shareholders were in attendance

■ 132,000 shareholders, accounting for 43% of all voting rights, voted either directly or by proxy

Proceedings were webcast live and full minutes of the General Shareholders' Meeting were published. This document was sent to all registered shareholders and to non-registered shareholders who had exercised their voting rights. It is also available on the Internet.

The *Prix de la qualité des échanges*, awarded by Le Revenu newspaper and the Publicis Ecom agency, acknowledged the quality of dialogue between the Group's shareholders and senior management.



#### ■ The Air Liquide Village: getting to know the Group's activities

Following the General Shareholders' Meeting, and in order to allow greater numbers to get better acquainted with the Group and its wide-ranging activities, Air Liquide organizes special discovery events outside Paris, called the Air Liquide Village. After Lyons and Rouen in May, 2004, with more than 1,300 visitors, two more such events are scheduled in May, 2005, in Lille and Toulouse. These open day events are an opportunity to explore the Group's diverse activities through site visits, knowledge games about the Group, demonstrations, exhibitions, and forums. These events traditionally end with an information meeting chaired by Benoît Potier.

Also, Air Liquide participates regularly in information meetings outside Paris organized by the *Fédération Française des Clubs d'Investissements* (French Federation of Investment Clubs). In 2004, such meetings took place in Toulon, Annecy, Brest and Orléans.



## Shareholder's Guide – Summarized Annual Report

The Shareholder's Guide – Summarized Annual Report is sent to every Air Liquide shareholder before the General Shareholders' Meeting. This document includes an outline of the Annual Report and practical information on shares and the role of shareholders. It is a crucial tool which helps track the stock, know one's rights, and learn the advantages of holding registered shares... 450,000 guides are sent out every year!



### ■ China

Early in September, 40 financial analysts, investors and journalists traveled to China to visit the Group's activities in Shanghai, Caojing and Hangzhou. This multiple-day visit was a powerful learning experience and a special time for exchanges between local teams and Air Liquide's senior management on the Group's strategy in Asia.



### Regular publication of information about the Company

#### Print publications

Air Liquide communicates regularly on its activities, development and strategy. Sales figures are published quarterly and earnings twice a year. Financial information is made available through press releases, financial notices and, when necessary, via meetings specifically convened for financial analysts.

In addition, four shareholder letters are sent each year to registered shareholders. They are also available on request and on the Internet. In 2004, two extra issues focused on the acquisition of Messer's activities and Asia respectively.

#### Internet

##### ■ [www.airliquide.com](http://www.airliquide.com)

The shareholders' section of Air Liquide's website is dedicated to providing information to individual shareholders who can access all the documents published by the Group. A special section, devoted to direct registered shareholders, provides a range of services such as account inquiry or, since the end of 2004, on-line stock order entry.

##### ■ e-mail alert

Subscription to this service allows anyone to receive the latest information on the Group, at no charge and in real time.

■ [actionnaires@airliquide.com](mailto:actionnaires@airliquide.com) is a dedicated e-mail address, via which shareholders can send their questions directly to Shareholder Services.

In May, 2004, Air Liquide received the "Grand Prix 2004 Boursoscan" in recognition of the shareholder section of its website, from Boursorama, the most important financial information website on Stock Exchange information in France, and the research and analysis firm TLB.

### Transparency and clarity of financial information

Air Liquide is committed to regularly publishing clear, transparent financial information for the benefit of all shareholders. All documents are published in two languages, French and English, and are available on the Internet. Through conference calls, financial analyst meetings and daily phone conversations, the Group is also in contact with the financial community.

The Group provides reports on its performance and communicates about its strategy with institutional investors worldwide on a regular basis.

Air Liquide is regularly involved in chemical industry meetings, and each year invites financial analysts and managers to learn more about its business lines and geographical presence. Also, in 2004, the Management Board played host to members from the *Association des Gérants de Patrimoines Privés* (Association of Private Investment Companies in France).

The Group received the "1<sup>er</sup> Prix de la Communication Financière" from Boursorama and the research and analysis firm TLB.

### Coherence and consistency of accounting methods over time

Since 1971, when it first issued consolidated statements, Air Liquide has applied the same accounting principles and practices. This approach facilitates better understanding of financial statements over time and offers greater consistency.



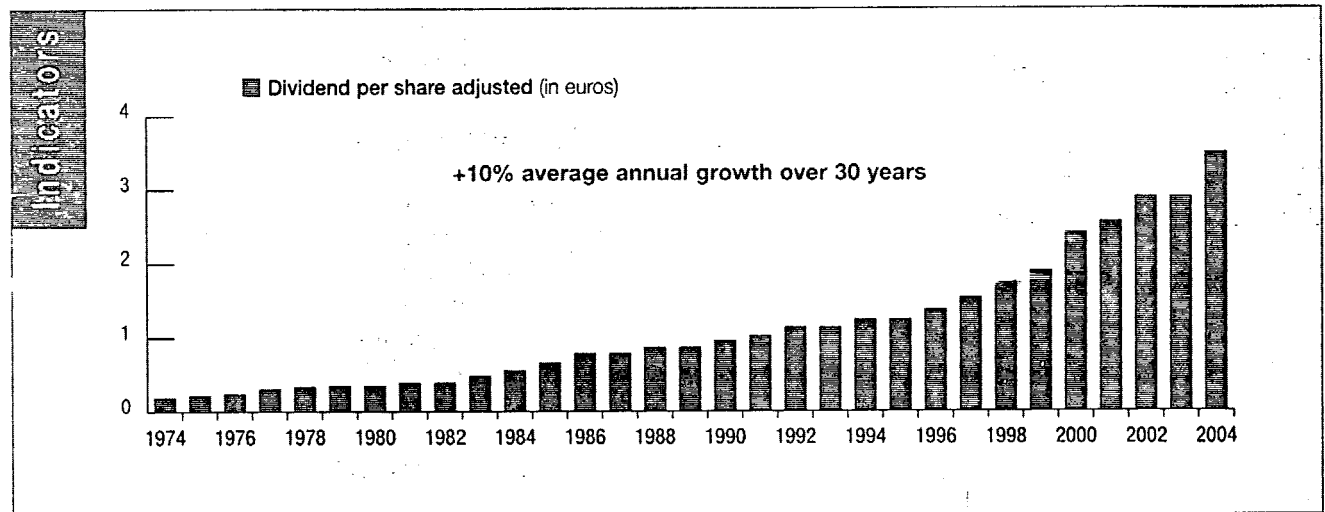
## Shareholder remuneration and increased investment value over the long term

### Steady, sustained earnings growth

2004	+7.80%
Over 5 years (1999/2004) <sup>(1)</sup>	+7.57%
Over 10 years (1994/2004) <sup>(1)</sup>	+7.79%
Over 20 years (1984/2004) <sup>(1)</sup>	+7.55%
Over 30 years (1974/2004) <sup>(1)</sup>	+9.45%

(1) Weighted average annual growth in net earnings per share (adjusted).

### Sustained distribution of dividends

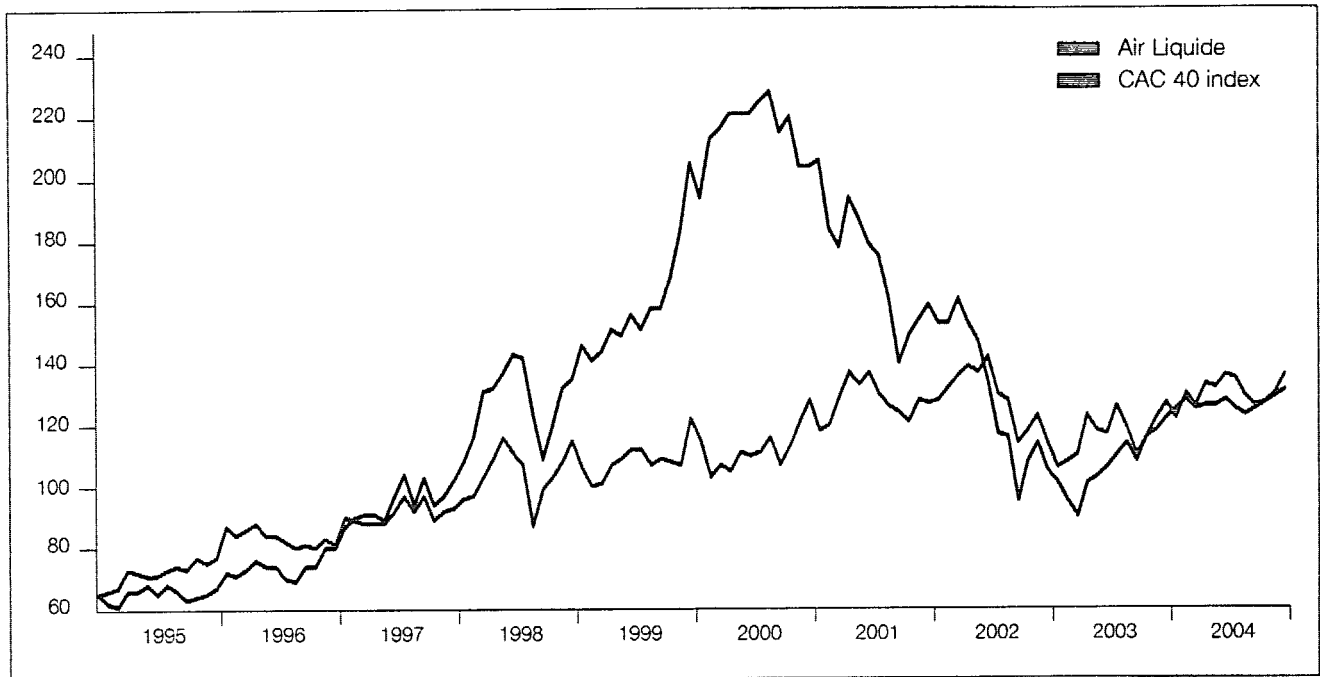


Over a ten-year period, dividend distribution regularly increased, on average +10.9% a year. The average distribution rate over this period amounts to 41.9% of net earnings.

### Dividend proposed to shareholders for fiscal year 2004

- 3.50 euros per share.
- +20.7% growth taking into account the bonus share allocation (one for ten) of June 14, 2004.
- Distribution rate of 50.3% of consolidated net earnings.
- In compliance with the Articles of Association, registered shareholders who have held their shares continuously since December 31, 2002, will receive a bonus equal to 10% of the dividend paid.

### Steady share growth



For the last ten years, the share price has risen steadily (+7.7% a year on average) outperforming the CAC 40 over this period (+7.3% a year on average).

### Air Liquide and the Stock Exchange

	2002	2003	2004
Adjusted share price (euros) <sup>(1)</sup>	high	145.46	128.09
	138.50		
	low	101.46	95.46
	as of December 31	114.27	127.27
		136.00	
Number of shares as of December 31 (thousands)	100,818	99,913	109,181
Market capitalization as of December 31 (millions of euros)	12,673	13,988	14,849
Adjusted net earnings per share (euros) <sup>(1)</sup>	6.42	6.68	7.20
Adjusted dividend per share (euros) <sup>(1)</sup>	2.90	2.90	3.50

(1) Taking into account the one for ten bonus share allocation in 2004.

### Growth of portfolio

Value, before tax, of a portfolio of Air Liquide shares including reinvested gross dividends, bonus shares, and loyalty bonuses.

#### Calculation method

■ The dividend (net dividend including tax credit) is reinvested in shares on the first opening day of the Stock Exchange after distribution.

■ Fractions stemming from bonus share allocations are converted into fractional shares.

Length of time	Multiplication of the initial investment by	Annual average growth
5 years	1.4	+6.3%
10 years	2.9	+11.4%
20 years	9.5	+11.9%
30 years	80.9	+15.8%



### **Sylvie Tabut**

**Shareholder Services  
team member**

#### *What is your role?*

Our role is to listen to shareholders and assist them by providing personalized advice. We answer their questions concerning their shares, the management of their portfolio and also help them by placing their buy/sell orders.

#### *Where have you made significant progress in the services you provide?*

Each shareholder has an electronic file which enables us to provide customized service and to meet everyone's specific requests. In addition, the Internet has recently revolutionized the way we operate. For example, direct registered shareholders can now place buy/sell orders directly on our website.

#### *Our satisfaction?*

Being able to meet the expectations of our shareholders effectively and promptly to their requests.

## **Shareholder Services**

The quality of Air Liquide's relationship with its shareholders is at the heart of its priorities. It is a critical factor in building loyalty among shareholders.

### **Shareholder Services**

The 20 members of Shareholder Services are dedicated to serving 350,000 individual shareholders. They handle an average of 100 calls and 50 letters and e-mails a day about company business and share information.

Shareholder Services manages the accounts of direct registered shareholders free of charge and also places their buy and sell orders. The team is available at all times to handle shareholder requests and this constant contact helps develop the communication tools available.

Also, as a stock market professional, Shareholder Services defends the interests of individual shareholders in all formal discussions, at the Stock Exchange in Paris, that concern developments and changes to the French and European stock market regulations.

### **Registered shares**

For over ten years, Air Liquide has promoted registering shares among its shareholders, especially via its loyalty bonus program. As a result, the pool of registered shareholders has grown steadily to reach 130,000 at the end of 2004, including 45,000 directly registered shareholders.

As a whole, as of December 31, 2004:

- 30% of all shares were registered;
- 62% of registered shares were held by individual shareholders;
- 48% of individual shareholders' shares were held directly;
- 25.9 million shares, that is 25% of share capital, were eligible for the bonus dividend paid out in 2005.

Holding shares in registered form allows Air Liquide to:

■ establish direct and personalized communication with its shareholders. All correspondence (shareholder letters, Shareholder's Guide, etc.), and all documents relating to the General Shareholders' Meeting (Notice of meeting, admission card, minutes) are sent directly to the Shareholders.

■ reward loyalty through a bonus program for shares registered by December 31, of any one year and held continuously in registered form for more than two calendar years: 10% increase on the dividend paid out, and 10% increase on the number of complimentary shares in the case of a bonus share allocation.

In addition, Air Liquide directly manages registered share accounts at no cost: no custody account fees and the dividend is paid directly by Air Liquide to the shareholder.

Beyond the information available via the shareholder helpline, directly registered shareholders can also use new online services which enable them to:

- view their account and statements of past transactions;
- receive their individual tax form (IFU);
- download forms for share transfer, order placement, and shares agreement registration;
- place buy and sell orders directly online.



**■ Online stock ordering**  
New service on the Internet for directly registered shareholders.

## Share capital

### Share ownership as of December 31, 2004

The number of voting rights, as of December 31, 2004, was 107,804,574, equal to the number of shares making up the share capital, that is 109,180,823 shares, less the treasury shares held by the Company, either directly (1,346,431) or indirectly (29,818), which have no voting rights. Shares with double-voting rights do not exist, which means that the distribution of voting rights mirrors capital share ownership very closely.

To the Company's knowledge, there are no shareholder agreements or agreements to act jointly, and no shareholder holds 5% or more of share capital or voting rights.

Employees, either directly or through investment firms, held 0.86% of share capital.

Supervisory Board and Management Board members held 0.08% of share capital.

The main directly registered shareholders are not subject to any liens.

### Changes in share ownership in the last three years

As of December 31	2002	2003	2004
Individual shareholders	39.9%	40.5%	38.9%
French institutional investors	21.3%	22.6%	23.5%
Foreign institutional investors	37.1%	35.0%	36.3%
Treasury shares (directly and indirectly)	1.7%	1.9%	1.3%

### Bonus share allocation

On June 14, 2004, Air Liquide allocated bonus shares on the basis of one new share for every ten held previously. In addition, shareholders who had held registered shares continuously since December, 2001, received a 10% bonus in the number of shares allocated as a reward for loyalty. 10,134,607 new shares were issued this way.

The share price, along with all historical prices, was adjusted downward on June 14, to reflect this transaction.

### Share buyback

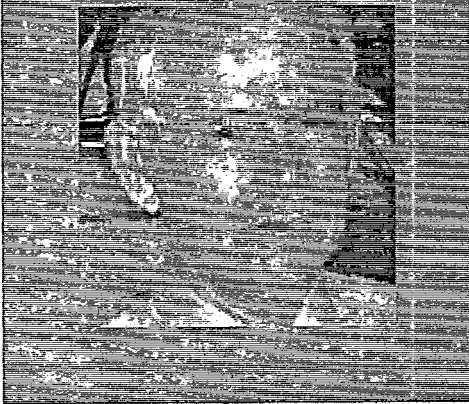
In 2004, Air Liquide maintained its share buyback program to optimize shareholders' equity. This program resulted in 339,743 shares being purchased at an average price of €130.60. As of December 31, 2004, Air Liquide held 1,376,249 shares accounting for 1.3% of share capital.



### Changes in share capital

Number of shares as of December 31, 2003	99,912,917
Bonus share allocation	10,134,607
Exercise of options	133,299
Cancellation of treasury stock	-1,000,000
Number of shares as of December 31, 2004	109,180,823





**Michel Cam**

**Director, Safety, Quality, Environment – Large Industries Europe**

*Large Industries Europe had zero accidents in 2004. What does that mean?*

We recorded no lost-time accidents involving Air Liquide employees in the Large Industries Europe business for any of our teams across 31 sites, including 28 gas production units and approximately 900 people.

*How was this achieved?*

In 2004, we reaped the rewards of extensive work that took shape in many ways: safety meetings, seeking out anomalies, drills to test emergency procedures, training, implementing an accreditation program to ensure that all employees have the necessary skills to carry out their duties, etc.

*How can you maintain this good record over the long term?*

By unrelentingly pursuing safety actions in order to constantly remain vigilant. We will also continue our efforts directed to the outside contractors: their lost-time accidents dropped by 20% in 2004. Objective: Zero accidents for everyone!



Many sites have operated several years without a lost-time accident:

- In France, the Seclin site celebrated 25 years without a lost-time accident.
- In Africa, Mali has not had a lost-time accident for 22 years, and Air Liquide Tunisia for 9 years.
- In Asia-Pacific, Japan Air Gases has recorded no accidents since May, 2003, Air Liquide Taiwan has not had a lost-time accident for 14 years, Air Liquide Korea and Philippines for 5 years.
- Large Industries Europe has recorded no accidents since April, 2003.
- In the Americas, Air Liquide Argentina recorded no lost-time accident in 2004.

# Preserving life and the environment

## Ensuring people's safety and preserving the environment

Safety is Air Liquide's number one priority. The Group is focusing its efforts to permanently strengthen the safety culture within its teams, subcontractors and at customer sites. In 2004, the lost-time accident rate was 2.26, that is 135 accidents for a total of 33,500 employees around the world (excluding Messer).

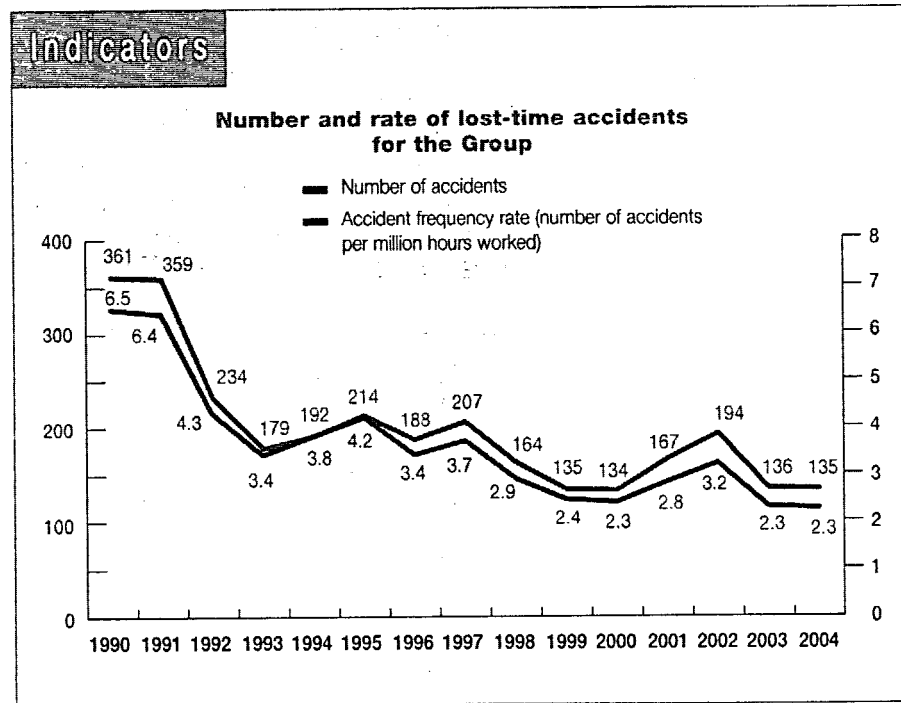
Over the last 15 years, this rate has reduced by 65%. In terms of safety, Air Liquide is one of the safest businesses in the chemical industry and its objective remains zero accidents. In 2004, actions taken both by the Group and its entities emphasized road accident prevention.

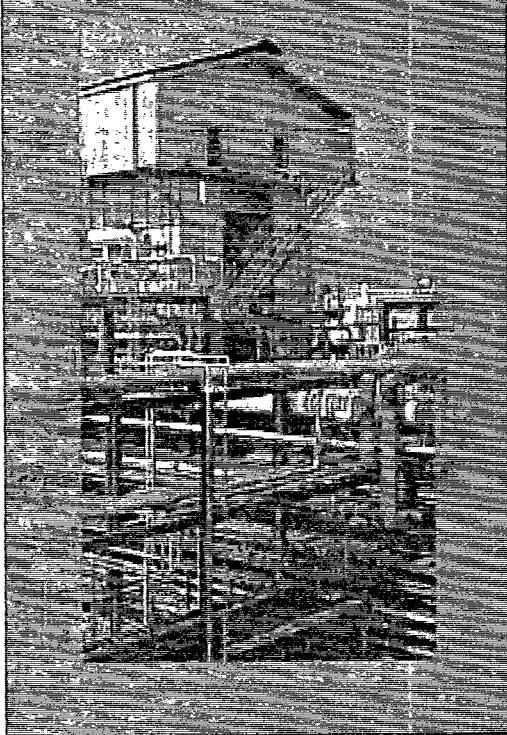
Thanks to this vigorous policy, several countries recorded a sharp reduction in the accident rate for 2004, such as in North America where it dropped to 1.15 in 2004 from 1.47 in 2003. Among other successful efforts, an in-depth analysis of near misses combined with appropriate recommendations brought about tangible results. A near miss is an incident that has no consequences, but could have resulted in injury or damage.



### Road safety training, Japan

In 2004, over 600 Group delivery drivers attended a two-day road safety training program provided by specialized organizations.





### ■ Safety operation, Chile

Air Liquide took the opportunity of an open day at two sites to organize safety training – evacuation and fire drill – intended for the employees' families in particular: safety doesn't stop at work...

### Industrial management: a single global framework, including all units

In 2003, Air Liquide launched a vast project to establish a set of common industrial standards worldwide in an effort to make the design, operation and maintenance of its industrial plant and processes even safer and more reliable. Ensuring consistency is now essential given the Group's increasing number of industrial units around the world and the growing complexity of operations.

A single protocol for technical procedures and standards was created in 2004 based on the best practices collected from within the Group. Additional methods and processes have also been added based on effective practices identified in other organizations to improve industrial management.

An important step in implementing this system is disseminating the information. In 2004, all managers and key players from the various entities received an industrial management guide available in 16 languages, detailing the requirements and necessary processes to ensure safety and facility reliability. This guide also outlines the organizational and operational framework relevant to them.

Since August 2004, this system has been tested in eight pilot countries on three continents. Its deployment on a global scale should be complete in late 2005. Each entity will review its existing procedures and standards and bring them in line, if necessary, with the new requirements.



### Seveso 2 Directive, Europe

This European directive focuses on preventing major industrial risks, and applies to all installations where hazardous materials exceed certain thresholds. Based on substance amounts, these facilities are placed in one of two categories: Seveso 2 'high level' and 'low level'. In Europe, 82 Air Liquide sites have been classified 'low level' and 20 'high level', mainly because of their stocks of oxygen. Seveso regulations apply only in Europe, but using the 'high level' criterion worldwide would bring the total up to 35 sites for the Group.

### Preservation of the environment on-site

By its very nature, Air Liquide's business produces few pollutants because it is largely based on air separation.

#### Air gas units: using less energy

The Group's 208 air separation units around the world are factories "without chimneys" that do not use a combustion process. They do not release carbon dioxide, sulfur or nitrous oxide, and rely almost solely on electric power: worldwide, approximately 1,900 megawatts of electricity are consumed at any given time, which is the output of two units of a nuclear power plant.

Through ongoing improvement of energy efficiency, the Group's units consume less and less energy per m<sup>3</sup> of gas produced, that is, in the order of 7% less over the past five years. In 2004, JAG, the Japanese subsidiary, made a particularly significant effort in this area, improving the efficiency of its air separation units by 8% in a single year.



### CO<sub>2</sub> Directive, Europe

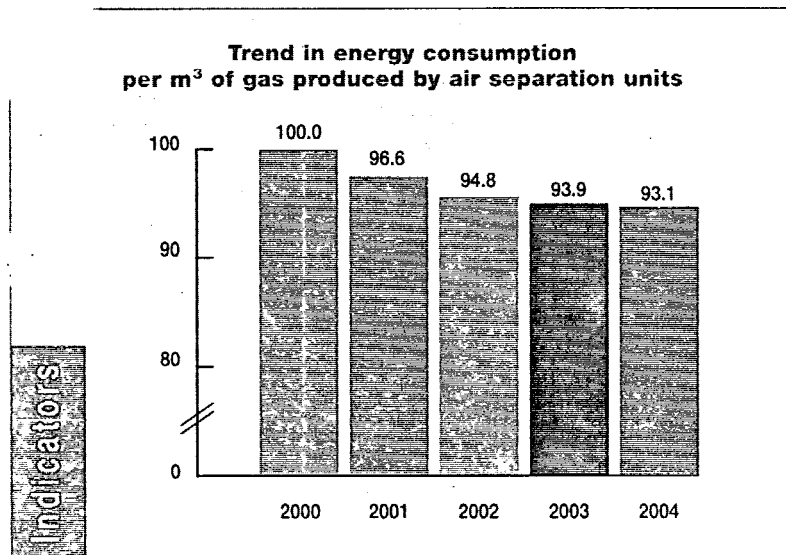
As part of the implementation of the Kyoto Protocol, the European directive on carbon dioxide emission quotas has been in effect since January 1, 2005. Since air separation units release hardly any carbon dioxide, this directive only affects five cogeneration units and two hydrogen production units in France, the Netherlands and Spain. In 2004, each country added the directive to its legislation and allocated quotas to the relevant facilities. In total, Air Liquide's quotas will cover anticipated emissions. Furthermore, the Group is already offering many solutions using certain industrial gases, oxygen in particular, in combustion processes to optimize the energy consumption of its customers and to contribute to reducing their carbon dioxide emissions.

### Cogeneration units: overall positive outcome on carbon dioxide

These units produce steam and electricity simultaneously, most often from natural gas. This technique is 20% to 30% more energy-efficient than technology that produces steam and electricity separately. It also releases less carbon dioxide, one of the greenhouse gases. In 2004, the Group's 15 cogeneration units prevented the emission of 647,000 tonnes of carbon dioxide into the atmosphere.

### Hydrogen units: desulfurizing fuels

Hydrogen is essential for desulfurizing fuels in order to reduce transportation-related sulfur oxide emissions. Carbon monoxide, often co-produced with hydrogen, is a raw material widely used in the chemicals industry. The two gases are produced from hydrocarbons, which releases carbon dioxide. Air Liquide is helping to reduce emissions by replacing older units with more efficient facilities.





### Focus on quality

Several initiatives focus on quality inside the Group, in particular, setting-up a company-wide integrated industrial management system, implementation of common Good Manufacturing Practices, and ISO certifications (9000, 13000, 17000). These certifications cover 39 countries, or nearly 65% of the Group's sales.

The Group has also embarked on a pro-active process for the preservation of the environment, in particular, through its commitment to observe the principles of Responsible Care of the chemical industry and to pursue ISO 14001 certifications, the international environmental benchmark. These certifications cover 13 countries, or about 14% of the Group's sales.

### On-site units: trucks drive fewer kilometers, consume less energy

On-site production units for nitrogen, oxygen and hydrogen reduce truck deliveries, a source of carbon dioxide emissions. In 2004, Air Liquide vehicles traveled 325 million kilometers to deliver liquid or cylinder gases. They would have had to travel an additional 54 million kilometers had these 3,000 on-site units not existed. The delivery of low-temperature liquid gas by truck requires an energy-consuming liquefaction operation. On-site units supply customers directly with products in gaseous form: by avoiding the liquefaction operation, they contribute to saving some 2,300 GWh of electrical energy, or about the annual domestic consumption of electricity by a city of one million people.

Pipeline supply to large customers from the Group's production units also reduces road transportation. The use of pipeline networks, totalling some 8,000 km worldwide, addresses both safety and environmental issues.

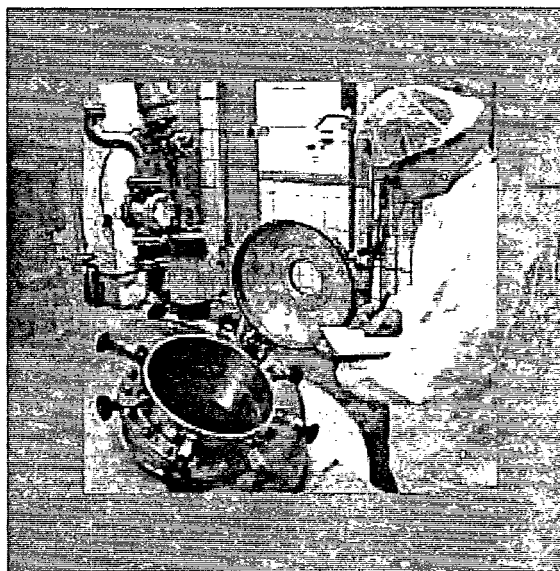
For air gases, 85% by volume is delivered by pipeline or on-site.

### Zero waste objective



The Group has started several initiatives aimed at reducing waste in all forms: recycling of manufacturing by-products, recovery of residual gas in cylinders, selective sorting of waste, etc. Furthermore, an increasing number of air gas production units are adopting new higher performing solutions to limit the volume of water consumed in cooling systems. Many sites are also implementing plans to reduce noise levels in facilities.

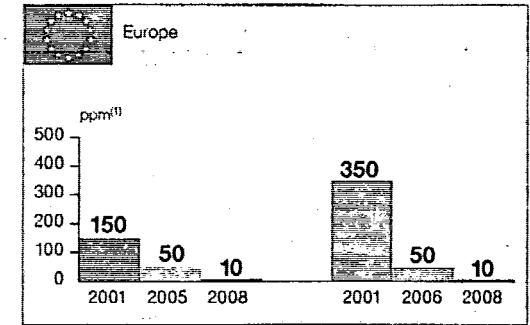
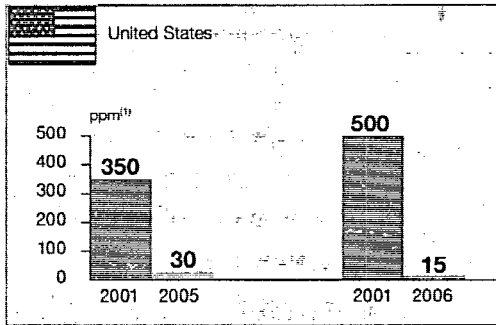
### Responsible Care award, Germany

The Air Liquide subsidiary Schülke & Mayr, specializing in hygiene products, received the Responsible Care award from the Association des Industries Chimiques.



### Regulations on sulfur content of fuels

-  Gasoline
  -  Diesel
- (1) parts per million



## Preservation of the environment at customer sites

### Hydrogen traps the sulfur in fuels

By trapping sulfur in fuels, hydrogen contributes to reducing transportation-related sulfur oxide emissions. Sulfur oxides are among the main pollutants responsible for acid rain and certain respiratory illnesses. Air Liquide is involved in the implementation of new American and European regulations on the sulfur content of fuels. In 2004, the volumes of hydrogen provided by Air Liquide to refineries worldwide made it possible to avoid the emission of some 400,000 tonnes of sulfur oxides into the atmosphere, or the equivalent of about half the emissions of a country such as France.

Air Liquide is also developing new solutions to recover and purify hydrogen in gases from refineries before they are burned as fuel. In 2004, Air Liquide successfully tested an innovative system using the adsorption technique at British Petroleum in Lavéra in the south of France. This new system makes it possible to process several gas flows with different hydrogen contents simultaneously, with excellent results. The 99% pure hydrogen recovered is sent directly into the pipeline system to supply the fuel desulfurizing processes - an attractive solution from an economic and environmental perspective.

### Oxygen for more efficient and cleaner combustion

For the past several years, Air Liquide has been developing combustion processes that enrich air with oxygen or use pure oxygen. By improving combustion, they reduce emissions into the atmosphere (particularly nitrous oxides) and cut down energy consumption.

In Brazil, where certain blast furnaces use charcoal, Air Liquide has developed an oxygen injection process that increases cast iron production by 8%, while reducing the consumption of charcoal, from wood sourced from the Amazon forest, by 13%. Aside from improving productivity, this solution is particularly attractive environmentally. Two customers have already adopted this new process and discussions are under way with other steelworks.



### Pollution impact study, France

It is possible to accurately evaluate the impact pollution has on people's health when generated in an industrial basin: Aria, an Air Liquide subsidiary specializing in atmospheric monitoring of industrial pollution, was chosen to conduct such a study in Dunkirk, northern France. This study, a first, given its comprehensive nature, focused on some 20 pollutants and included 30 companies operating within about 600 square kilometers.



### Cogeneration unit, Netherlands

The steam and electricity cogeneration unit that Air Liquide will set up for Shell in Pernis, will replace an old facility that burns the refinery's heavy petroleum residue. The new natural gas fired unit will be more efficient and will cut down atmospheric emissions noticeably. It is in line with a broader plan, agreed to by Shell in the Netherlands, to reduce emissions.



### ■ Furnace testing oxy-combustion burners

Developed and optimized in Group research centers, these burners use oxygen instead of air. This limits emissions of harmful nitrous oxides and improves productivity. Moreover, by increasing carbon dioxide content in emissions, they make capturing carbon dioxide molecules possible.

### ■ Electronics: less lead, higher quality...

Lead, a toxic element, is gradually disappearing from the industrial sector. From July 1, 2006, lead can no longer be used for soldering electronic components in Europe, and will soon be banned in the United States and in Asia (Japan and China, in particular). Eventually, this ban will be in effect worldwide. Since soldering temperatures for replacement alloys are higher, the oxidation risk increases. To solve this problem, Air Liquide offers Alix, an inerting solution using nitrogen, to its electronic assembly customers. Several hundred of systems have already been installed, mainly in Europe and the United States.



### ■ Double glazing

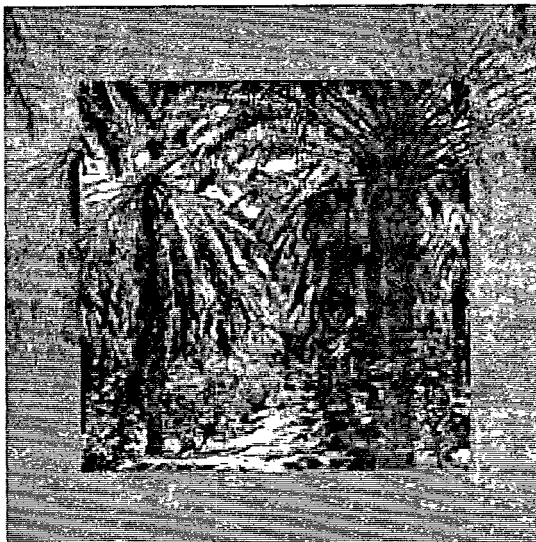
Rare gases, such as argon, krypton or xenon, are very effective at improving double glazing isolation because their thermal conductivity is much lower than that of air. Air Liquide supplies most of the European glazing manufacturers with rare gases that are injected between the double glazing panes. Using rare gases can lead to a reduction in energy costs of up to 50% over single glazing, not to mention the enhanced noise reduction effect. A study by the glass industry shows that, if this isolation technique using rare gases was adopted for all windows, the European Union could avoid the emission of 115 million tonnes of carbon dioxide into the atmosphere.

### ■ Gas quenching is better for the environment than oil quenching

To improve the mechanical strength of metal parts, they are heated at very high temperatures, and then cooled very quickly generally by plunging them into oil. In such traditional quenching, parts then need to be washed and the oil recycled. Air Liquide has developed gas quenching technology based on nitrogen that is more ecological since it produces no rejects and removes the need for washing and recycling. This Alnat HP solution has met with growing success, particularly in the automotive industry. Early in 2004, the Group started up a gas quenching unit at Bosch, the world leader in diesel injection, in Bari, Italy.

### ■ Arc welding and plasma cutting

Air Liquide offers welding solutions that improve the welder's working conditions. The Arcal range of gases used in arc welding or plasma cutting produces much less smoke and spatter than traditional gas mixtures.



### ■ Food hygiene, Tunisia

Successful trials were conducted on the use of carbon dioxide for disinfecting dates. This solution may end the dependence on bromomethane, which leaves undesirable residues and harms the environment.

### ■ Environmental award, France

The Turboxal 2 clean-up robot received the award for Innovative Techniques for the Environment at Pollutec 2004, an international exhibition of environmental equipment, technology and services held in Lyons, France.

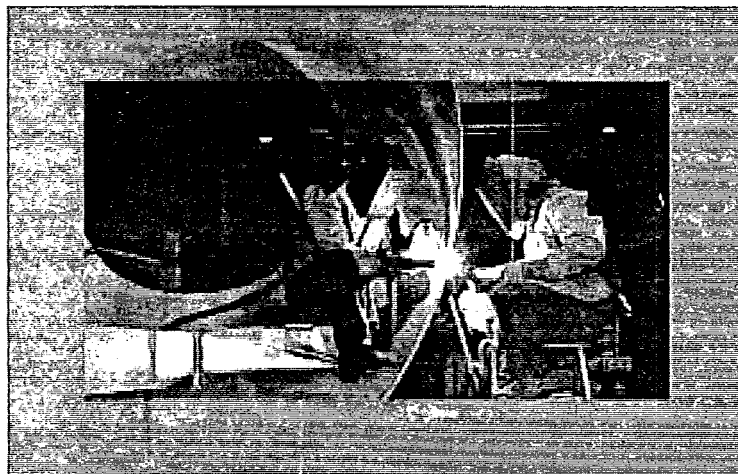
### A broad range of solutions to treat waste and pollution

There are many methods of waste treatment using gases. One solution is the cryogrinding of certain materials (used tires, for instance) with liquid nitrogen, to isolate and recycle constituent parts. Another is soil decontamination through chemical oxidation using oxygen. Oxygen is particularly suitable for cleaning up our environment. For example, it is used to burn household waste at a high temperature to produce energy while cutting incineration emissions by up to 85%. It is also very useful for cleansing water in purification systems or rivers affected by industrial pollution: the Turboxal robot, designed by Air Liquide and recently improved in partnership with a university research centre and an equipment manufacturer, floats on the surface of the water to be sanitized and injects oxygen bubbles deep below the surface. Oxygen facilitates the multiplication of micro-organisms that break down pollutants. The most recent version of Turboxal 2 reduces clean-up time by 20%.

### Several possibilities to limit carbon dioxide emissions into the atmosphere

Air Liquide is actively involved in research to capture carbon dioxide molecules, and focuses particularly on the emissions of next-generation power stations. In 2004, Air Liquide secured additional assistance from the American Department of Energy (DOE) to continue research in Ohio on a pure oxygen combustion process to recover carbon dioxide, a by-product of coal-based boilers. Similar work is being conducted by the Group in France with the support of the ADEME (the French Agency for Environment and Energy Management) on boilers using heavy petroleum residues.

Once recovered, carbon dioxide can be recycled in industrial processes or else injected into the subsoil, in coal mines, for example, or oil fields that are no longer operational. This process also makes it possible, in some cases, to recover hydrocarbons trapped in these reservoirs. Air Liquide participates in several research programs for the injection of carbon dioxide into the subsoil in Poland (RECOPOL European project), in the Illinois basin in the United States, in Alberta, Canada, and in France.



### Sustainable development sales

About 35% of Air Liquide's sales are directly tied to applications or activities that contribute to preserving the environment and life: these include gas-dependent environmental applications principally, but also Healthcare activities and energy-saving solutions.





### **François Jackow**

**Vice-President  
Research-Development  
and Advanced Technologies**

*Can you give us a few examples of promising research topics?*

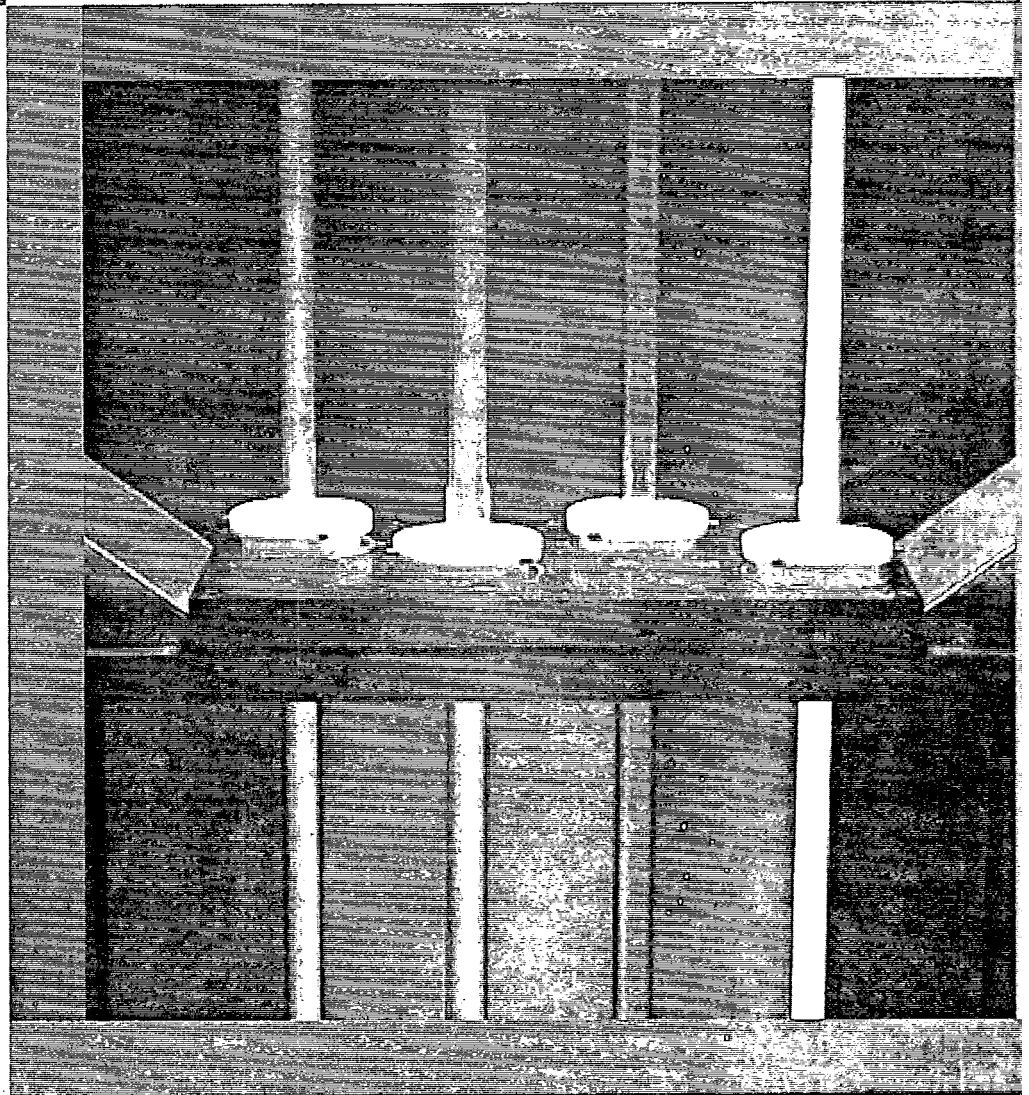
Environmental preservation is a major orientation, in particular through the development of cleaner industrial processes. For example, we are working on steel production technologies that emit 50% less carbon dioxide! Hydrogen, as a source of energy, is another important research topic. Finally, healthcare shows significant development potential in therapeutic gases, homecare, etc.

*How does R&D work at Air Liquide?*

Our eight research centers around the world operate as a network. A manager, with global responsibilities, coordinates a network of researchers from different countries involved in the project. This same difference means that there is always a researcher working on the project. Being present on three continents brings us closer to our customers, but also to the best technological partners in the world.

*What is its contribution to the Group's growth?*

A third of Air Liquide's growth stems from innovation, a fair share of which is generated by the teams in R&D. This innovation brings about commercial successes, of course, but in 2004, it also translated into 200 patents, 50 scientific publications, and 50 new partnerships. Every day, R&D, provides a "guiding light", preparing the Group for the future.



### **■ Plasmas for ultra-pure krypton and xenon**

Krypton and xenon are gases present in extremely low volumes in the air we breathe. Several tens of millions of liters of air are required to produce one liter of either of these gases, which also retain the impurities present in the air. To eliminate the most resistant, the krypton-xenon mixture goes through a device that concentrates a large quantity of microwaves in tubes. These microwaves generate an electric arc, a phenomenon identical to a lightning flash, and the gas becomes highly excited: this is plasma. The temperature rises to 10,000°C, which makes it possible to destroy impurities and obtain ultra pure gases. As xenon is a fuel for ionic propulsion satellites, such level of purity is essential. This plasma technology is also available to customers in the semi-conductor industry which seeks to reduce polluting emissions. This is the "green fab" concept.

# Innovating for tomorrow

Technological innovation is one of Air Liquide's great strengths: in various locations worldwide, over 2,000 people work in research, technology and engineering centers. These teams contribute to the Group's advance in three major directions: sustainable development and the environment, health and hygiene, and advanced technologies. They develop innovative and competitive gas production technologies, as well as new applications and service offers. They also disseminate technical expertise within the Group while maintaining an active watch on technological developments.

## Moving towards more environmentally friendly industrial processes

Air Liquide is constantly developing new solutions to make its customers' industrial processes more environmentally friendly, in particular those involving combustion. The partial replacement of air with oxygen in coal-fired boilers, for instance, considerably reduces polluting emissions, in particular nitrous oxides (NOx), a by-product in part responsible for acid rain. Air Liquide is continuing tests on a pilot power plant in Ohio, United States. Similar developments are under way in other countries: in France, the Group is conducting research on a natural gas boiler in partnership with the Elyo company as part of a project supported by the *Agence de l'Environnement et de la Maîtrise de l'Énergie* (the French Agency for Environment and Energy Management).

In metallurgy and the glass industry, Group researchers are developing laser sensors that measure the atmospheric content of boilers very precisely, and make it possible to adjust production parameters in real time.

Another example of innovation beneficial to the environment is the use of carbon dioxide instead of sulfuric acid in the production of certain papers. Sulfuric acid releases sulfur compounds, a source of unpleasant smells and water pollution. Replacing this powerful acid by carbon dioxide also allows for more specific control over the various manufacturing processes and a reduction in the use of certain chemical additives. Air Liquide is fine-tuning this technology with the PTS Institute, a renowned paper industry research center in Germany.



### ■ Research

Metallurgy study of automobile parts after thermal treatment with the Group's gases.

## Innovation in 2004

Budget:  
over 150 million euros

550 researchers  
representing more than  
25 nationalities

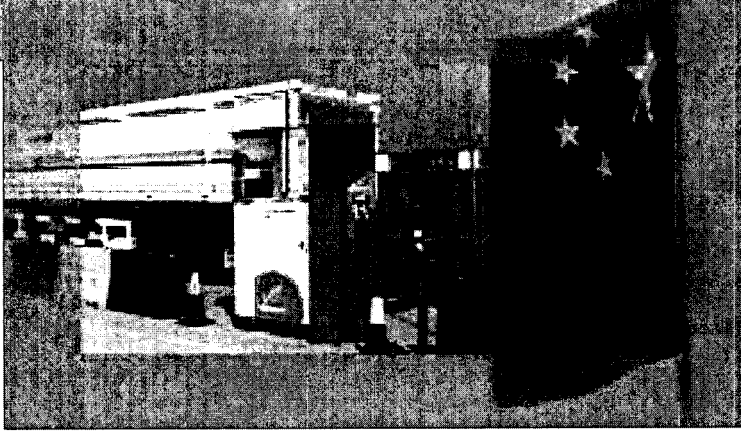
8 R&D centers (France,  
Germany, the United  
States, Japan)

2,600 protected  
inventions

Over 100 industrial  
partnerships

Over 100 international  
relationships with  
universities and research  
institutes

Indicators



### ■ Challenge Bibendum, China

The Challenge Bibendum, organized by Michelin in Shanghai between October 11-14, 2004, gave Air Liquide the opportunity to again show its expertise in gaseous hydrogen logistics. During this technology contest, over 150 vehicles were tested, in particular for their environmental performance. Twenty of them ran on gaseous hydrogen supplied from a special service station provided by Air Liquide. During the three days, some one hundred refills, approximately 300 kg of hydrogen, were carried out respecting safety procedures (three to four minutes per vehicle), for a total distance of 30,000 km.

## Hydrogen: environmental protection

In the energy field, hydrogen contributes to protecting the environment in two different ways: it reduces sulfur oxides emissions by desulfurizing fuels, and is showing potential as a clean energy carrier.

### Hydrogen, a cleaner energy

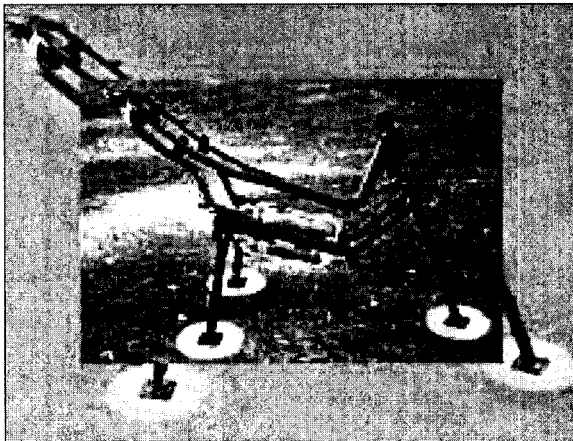
A very simple equation to begin with: hydrogen + oxygen → energy + water. Hydrogen is the only fuel that emits nothing else but steam during combustion. The idea is attractive from an environmental standpoint and offers an alternative to fossil fuels. After many years of research on this new energy carrier, Air Liquide now has leading-edge, comprehensive expertise of this technology, including production, storage, distribution and its use in a fuel cell.

### Fuel cells for mobile phones

In 2004, Air Liquide and its subsidiary Axane, which specializes in the design, development and manufacture of fuel cells ready for use, won a commercial contract with Bouygues Télécom in France. A fuel cell producing 2 kW power will supply energy to a telecommunications tower near Toulouse, France. Using a remote management system, local Air Liquide teams will be able to anticipate any maintenance or hydrogen supply needs. This undertaking vindicates fuel cell technology as an alternative power supply to GSM antennae at isolated sites without access to the regular power grid.

### Three pilot projects in urban transportation

Aside from stationary or portable applications (emergencies, major events), supplying power to urban transportation vehicles is a third mid-to-long term strategic development for the fuel cell. In the context of European Union and Japanese government research projects, Air Liquide has been running, since 2003, three gaseous hydrogen filling stations at a pressure of 350 bar. These stations are located in Madrid (Spain), Luxembourg, and Kawasaki (Japan). The Group also has a similar pilot station at its site in Sassenage, near Grenoble, France, where rapid, high-pressure filling technologies are being tested.



### ■ Hydrogen scooter

Air Liquide is developing a hydrogen cartridge system for light vehicles: when empty, simply replace it. This system is being developed for a scooter, with a range of about 120 km.



### On the cutting edge of technology for space discovery

Hydrogen is essential for the Ariane rocket: alongside the European space industry, Air Liquide has played a part in the launcher development for over 40 years. It supplies hydrogen and oxygen that propel the main stage of Ariane 5. These gases are also used for the upper cryotechnical stage of Ariane 5 Plus. The Group also participates in the design and manufacture of cryogenic storage for the rocket. Leveraging this expertise developed in a high-tech sector, Air Liquide researchers are now working on various solutions for storing hydrogen in liquid form (cryogenics), and in gaseous form in high-pressure tanks. In this context, the Group decided to set up a plant in Marl, in the Ruhr region in Germany, to process cylinders at 700 bar, a pressure three times higher than traditional cylinders, which greatly reduces hydrogen storage space.

### Several approaches for hydrogen production

Today, hydrogen comes largely from processing natural gas with steam at a very high temperature. This approach is used to supply hydrogen to Large Industries customers and to refilling centers (trucks and cylinders). The Group also relies on electrolysis of water to produce hydrogen when customers with moderate requirements are located too far from processing plants. For the past three years, the HYOS product line has been highly successful with some fifteen electrolyzers installed worldwide. A third method consists in recovering, through purification, the hydrogen contained in gases resulting from chemical and petrochemical industry operations. It is currently used on a small scale, but is quite profitable.

### Air Liquide: an active member in the global hydrogen community

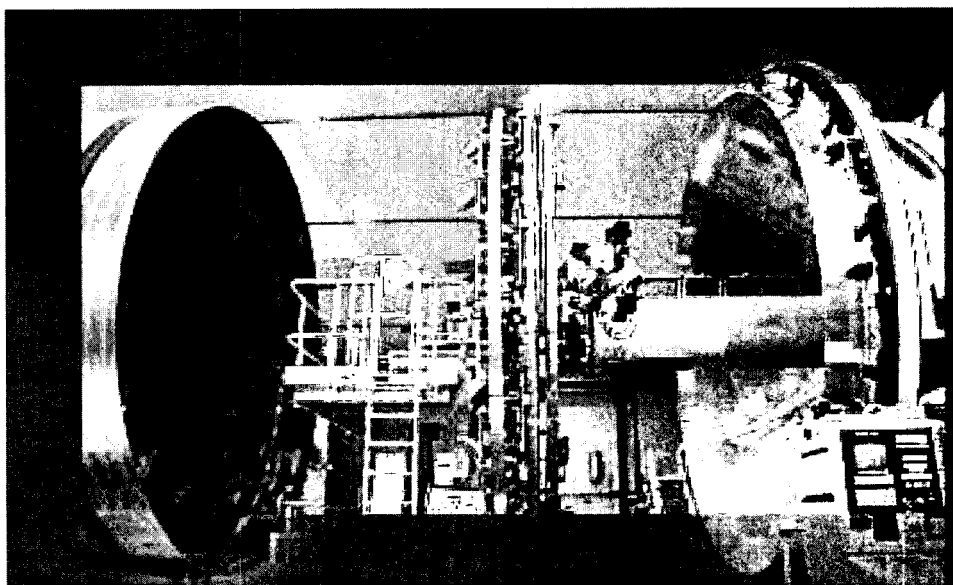
Many countries display keen interest in hydrogen energy. Air Liquide takes part in a great number of international projects and events. It is, for example, involved in the European StorHy project for future storage methods, and also belongs to the European Hysafe competence network on hydrogen safety. In 2004, Air Liquide demonstrated its expertise in hydrogen and fuel cells on several occasions. These include the conference in Toronto, Canada, the forum in Hanover, Germany, and the global conference on hydrogen energy in Yokohama, Japan.

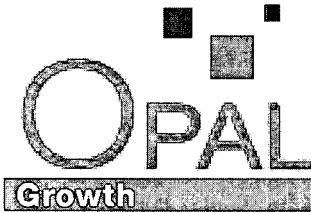
### ■ Innovation award

In July 2004, the Air Liquide subsidiary Axane, received the "Grand Prix Siemens de l'Innovation" award for its Roller Pac line of fuel cells. Jean-Louis Etienne used this technology as part of his scientific mission on Clipperton Island.

### ■ Cryospace, France

Workshop for cryogenic storage tanks for the Ariane 5 rocket, in Les Mureaux, near Paris.





### **A new solution in Electronics**

Semi-conductors and especially flat screen fabs use specialty gases in large quantities, generally delivered in cylinders. Today, Air Liquide offers its customers an integrated solution that includes products, on-site distribution systems and related services. This ensures a safe and reliable supply of gas up to the point of use. Whereas cylinders are available on demand, this integrated offer leads to multi-year contracts, thereby increasing the Group's visibility. The benefit to the customer is twofold: cost-optimization and Air Liquide's expertise. This offer, called Jumbo, was launched in late 2004.

### **Healthcare and the food industry: always going further in the traceability and hunt for impurities**

In the context of increasingly tight regulations on hygiene and safety of products, Air Liquide has developed new technology designed to measure the microbiological quality of gases, and detect possible micro-organisms in gases used, for example, in manufacturing food or pharmaceutical products. This patented innovation is now part of the Group's pharmaceutical offer, and was test-marketed in 2004 at several customer sites in France.

For the past few years, the Group has also been developing traceability solutions based on electronic chips and barcodes, in particular to monitor gas cylinders better.

### **A greater therapeutic role for medical gases**

Thanks to the Group's vigorous research in gaseous medications, their use is steadily increasing to include new illnesses, and new therapeutic indications. For instance, the Group holds a patent for an oxygen-helium mixture used in treating asthma, and has submitted a request for a marketing authorization. In October 2004, Air Liquide obtained a patent in Germany for the use of xenon in anesthesia. This gas is particularly useful in a number of surgical applications.

### **Electronics: Air Liquide, a "molecule designer"**

In the electronics sector, the introduction of new materials such as tantalum or hafnium, makes it possible to manufacture increasingly smaller and more powerful chips. The use of these materials in latest-generation chips requires Air Liquide to supply customers with new molecules, called advanced precursors, a number of which are born out of its own research and have been patented. TSA, for instance, makes it possible to deposit insulating films. It was launched in 2004 in partnership with Aviza, the equipment manufacturer based in Silicon Valley, United States. Other molecules are now being developed with an aggressive target in sight: chips with transistors reduced in size to 45-millionths of a millimeter!

#### **□ Altop cylinders**

In 2004, Air Liquide proceeded with the introduction of innovative cylinders that integrate the expansion of gas, and combine ergonomics with increased safety. Altop cylinders currently account for close to 30% of the cylinder stock that can be outfitted, and further improvements are under way.



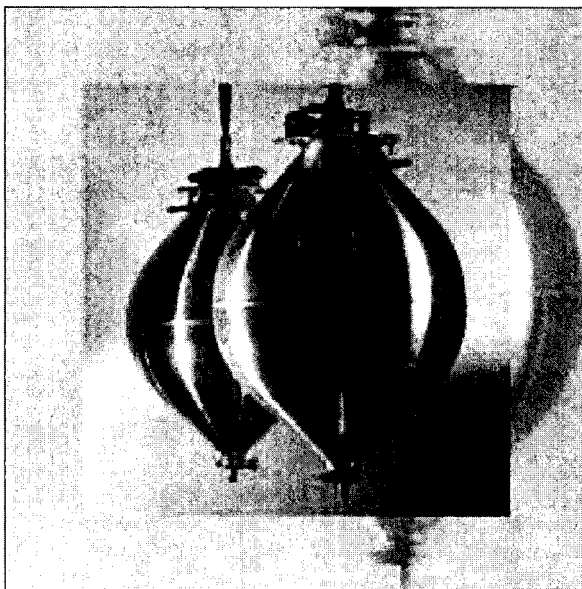
### Close to absolute zero with helium

The Advanced Technology Division (DTA) is focusing on cryogenic cooling solutions that come close to absolute zero ( $-273^{\circ}\text{C}$ ). Very low temperatures in particular enable researchers to deepen their understanding of particle physics. The most powerful particle accelerator in the world, under construction at CERN in Geneva, Switzerland, expected to be ready for use in 2007, is one of the major projects in this field. The Group is setting up 27 km of helium distribution lines in order to maintain at  $-269^{\circ}\text{C}$  the superconductor magnets of this giant ring, located 100 m underground. Air Liquide also designed and created cooling systems (superfluid helium) for infrared sensors on board the European satellites Herschel and Planck, to be launched in 2007.

This expertise in helium-related technologies also includes the production of helium liquefaction units. In 2004, for instance, DTA teams took part in several projects in Qatar, China, the United Kingdom, France and Taiwan.

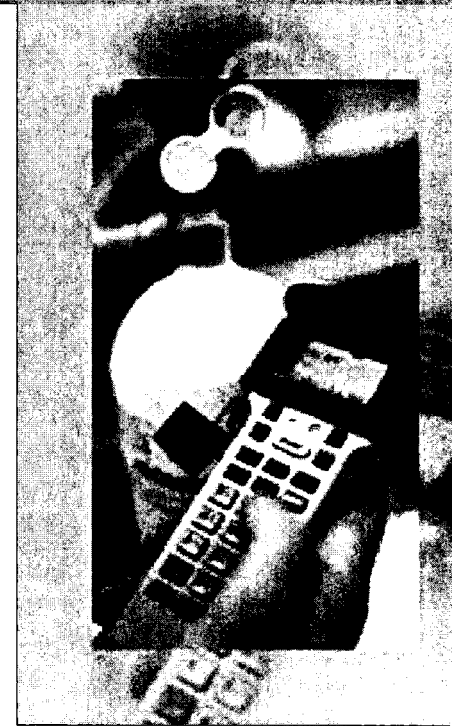
### Customized aeronautics solutions

Aeronautics is yet another field in which Air Liquide has leading-edge expertise. Membrane technology marketed through its subsidiary MEDAL was selected in 2004 by a large global manufacturer for on-board OBIGGS nitrogen generating systems intended to prevent the accidental explosion of reservoirs. In addition, the OBOGS oxygen generator, designed and manufactured by Air Liquide based on adsorption technology using molecular sieves, is being recommended by Airbus to airline companies for oxygen masks for future A380 passengers.



#### ■ A high-performing airtight device

This sphere contains 1,140 liters of liquid helium (140 kg) to pressurize the cryogenic storage tanks of the Ariane 5 rocket. In order to keep liquid helium at very low temperatures ( $-269^{\circ}\text{C}$ ), the insulation using vacuum is very effective: only 1 mg of gas can go through the surface in 100 years!



#### □ Traceability

Electronic chip-based traceability solutions designed by Air Liquide and its subsidiary Athelia for the management of transportable Group equipment has won over many customers in a variety of fields. For example, STP, subsidiary of the French postal service, for the distribution of newspapers in containers; an international manufacturer of food products for its nitrogen-pressurized stainless steel packages; Canadian sawmills for drying high-quality wood; Mahou-San Miguel, a Spanish brewer, for its pressurized equipment for pumping draught beer under carbon dioxide; Primagaz in France and Repsol in Spain for their storage of LPG, etc. Even Microsoft, calls on Athelia and Air Liquide for this type of service.

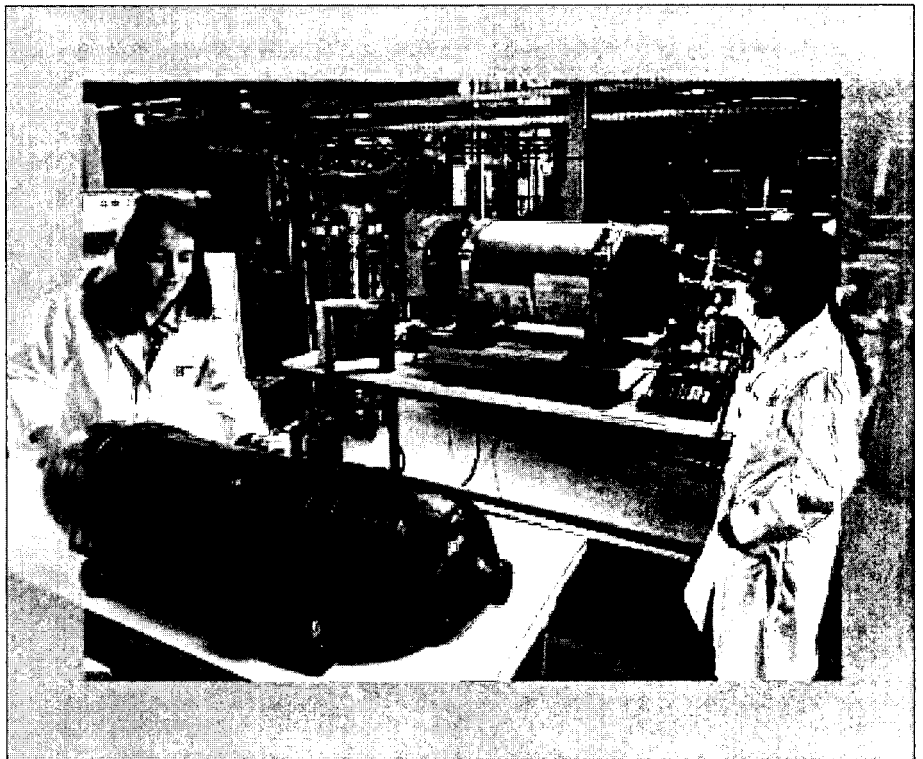


## Patents

Each year, the vitality of Air Liquide's innovation strategy results in many patent applications, numbering 225 in 2004. The Group's intellectual property heritage now includes 2,601 inventions protected by 8,702 patents. Close to 20% of these inventions stem from the recently acquired Messer activities. Air Liquide is the world's top patent applicant in industrial gases. Each high-potential invention goes through a protection process that includes Europe, the United States, Japan and China. This was the case for 48% of all protected inventions in 2004.

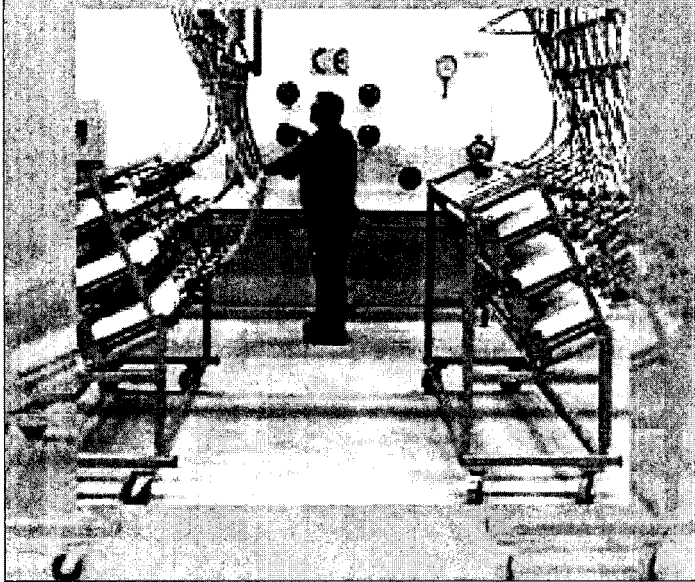
## Innovation: a mindset

Aside from the R&D teams, many Air Liquide employees contribute innovative ideas to improve the offer to customers and the Group's operations. To encourage this spirit of constant innovation, Air Liquide organizes Innovation Day each year on or around November 8, which is the anniversary date of the Group's founding in 1902. Each entity celebrates it in its own way. In Brazil, Japan, the United States, Canada, Australia and several European countries, contests provided the opportunity to recognize the best innovators for the year. In Spain and France, small multidisciplinary teams found new solutions to meet specific national issues thanks to innovation challenges. On the last Innovation Day, more than 7,000 Group employees took the opportunity to find out about some of the 300 inventions selected by the "innovation facilitators" appointed in the Group's main subsidiaries.



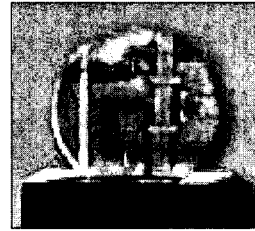
## ■ Sustainable development

More than half of the Group's R&D budget is devoted to research focused on environment and sustainable development: energy efficiency, cleaner production processes and new energy sources.



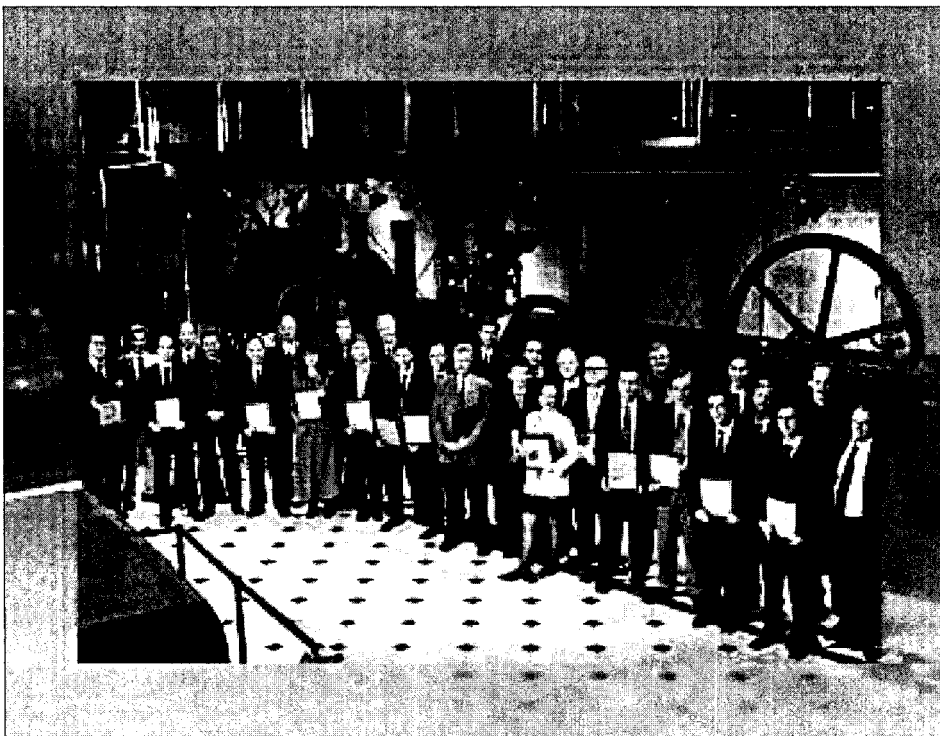
### Innovation trophy, Scandinavia

The trophy recognized a mobile cart system that avoids needless manipulations when filling small cylinders. In Scandinavia, all employees are actively involved in innovation, and in 2004, they voted on the innovation of the year. Each one of the six new innovations selected was presented by its team via video broadcast to all sites in Denmark, Sweden and Norway on November 8, the Air Liquide Innovation Day.



### Teleflo: an idea from the field

A number of innovations prove to be of prime importance to Air Liquide. This is the case for the Teleflo remote management system, which was initially conceived by four Group employees in 1991. This remote monitoring solution for gas production and distribution facilities worldwide has been greatly improved since its beginnings, and has become essential for managing deliveries and maintaining equipment, in particular for on-site units. It was awarded first prize on Inventors' Day in 2004. All facility parameters are monitored 24/7. Today, some 15,000 Teleflo systems are in place at Group units in 43 countries, and 30,000 have been sold to a wide range of customers to help them run their own facilities.



### ■ Inventors' Day

Patented innovations contribute significantly to the Group's development. Each year, Air Liquide honors the inventors of successfully commercialized patents. In 2004, Air Liquide reviewed the past commercial performance of patents awarded in 1997 and 1998, and acknowledged 155 inventors of 12 different nationalities. On November 22, 2004, 30 inventors received particular tribute during a ceremony held at the *Conservatoire National des Arts et Métiers* in Paris, in the presence of Professor Émile-Etienne Beaulieu, President of the *Académie des Sciences* in France.



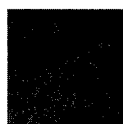
# The strategy in our core business, growth in three dimensions

*Air Liquide is the world leader in industrial and medical gases. With its expertise in leading-edge technology and an exceptional geographic presence on five continents, Air Liquide achieves growth through a dynamic development strategy based on three drivers.*



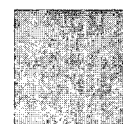
## **A broad and firm base**

- Air Liquide's first growth driver centers on its broad customer base in fully-developed economies. Gases are used universally in industrial processes, and their role is essential. Industrial production volumes steadily increase over time which naturally results in increased gas sales.
- Oxygen, for example, is used more and more in the production of steel and glass. Through this application, less natural gas is consumed and fewer emissions are released into the atmosphere. Industrial processes are thus more efficient and less polluting. Air Liquide benefits from industrial production growth over the long term through the products it sells in advanced economies.



## **Seizing new opportunities in emerging geographies**

- Emerging economies with high growth rates are the second strategic development driver for Air Liquide: Eastern Europe, Russia, China, the Middle East, India, Latin America, etc. The Group adapts to each location, strengthening its current activity or positioning itself to capture opportunities. Demand for basic industrial goods is sustained in these countries, resulting in particularly rapid growth in sectors such as iron and steel, chemicals, or metal manufacturing. For Air Liquide, this translates into sales opportunities of significant volumes of gas.
- Air Liquide's regional presence in emerging economies also enables the Group to support the development of its large international customers. It provides them the same high-quality service, everywhere and at all times. A first contract signed with a Large Industries customer is often a starting point in the development of Air Liquide's activities locally.

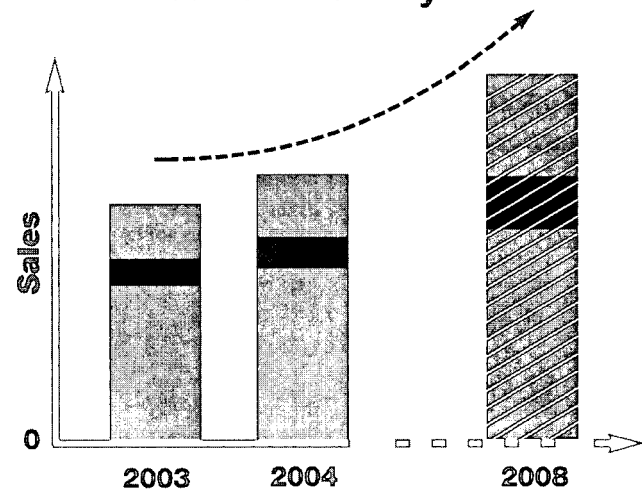


## **Accelerating growth through technology, innovation and services**

- The Group's third growth driver is its ability to transform markets through new offers providing further added value based on new technologies, innovation and services. New products play a key role – hydrogen, carbon monoxide, new molecules for the latest-generation electronic chips, therapeutic gases and, hospital hygiene products, etc. – as do new applications using the Group's traditional gases, such as oxygen, used more and more for the purpose of environmental protection, or xenon for its anesthetic properties.
- The Group's offer includes an increasing number of high value adding services: supplying new gases up to the point of use, remote monitoring of facilities, traceability, analysis, metrology or, in healthcare, homecare for patients with respiratory illnesses. Today, most solutions, whether commercialized in advanced economies or in new geographies, reflect this threefold approach, based on technology, innovation and services.

Medium-term outlook:  
+7% to +9% a year

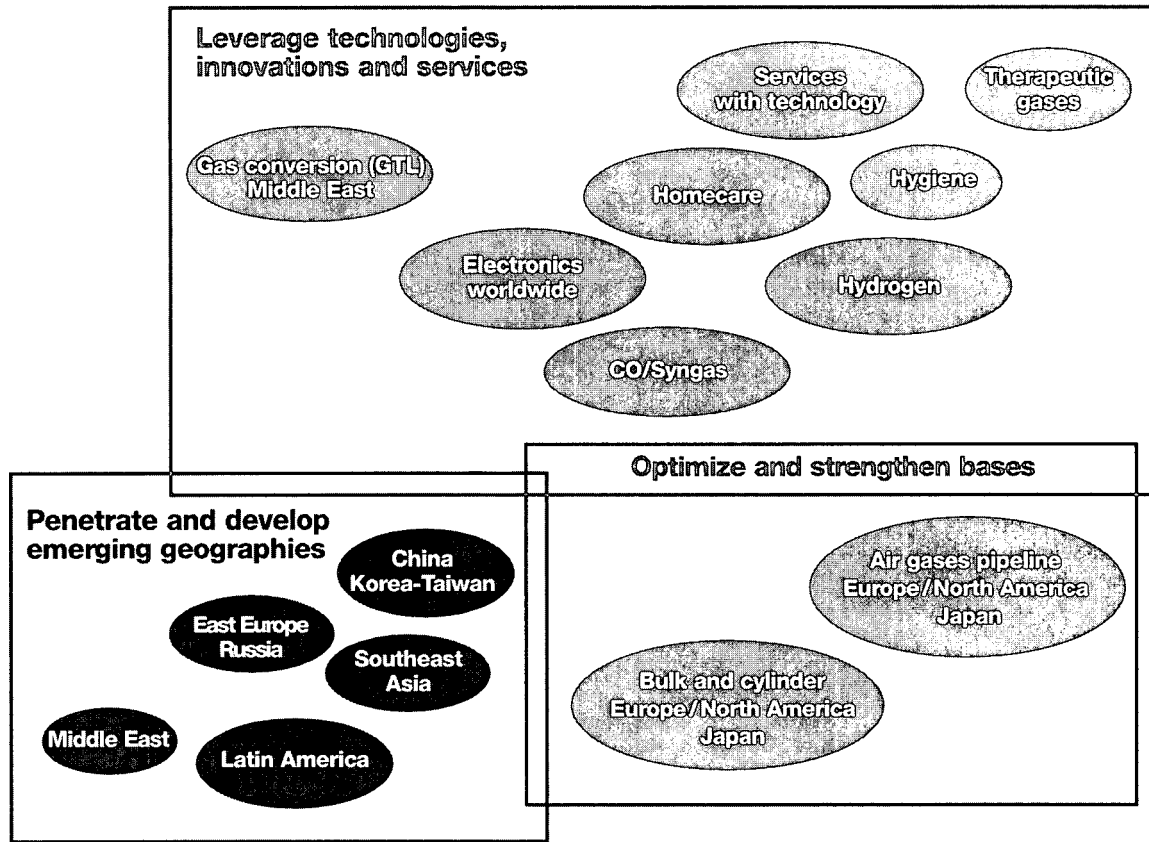
Blue, red, green: Air Liquide chose these colors, basic components of light, to stand for the Group's three sources of growth.



# Capturing sources of growth

Sophisticated needs

Basic needs



Developing countries

Industrialized countries

## European platforms

Air Liquide has created European teams to speed up marketing of innovative solutions across the continent and to support the regional development of large customers. They lend their support to local teams by combining leading-edge skills in applications and use of gases, with their ability to negotiate with large customers. The Group achieved significant successes through this dual European and local approach in 2004, particularly in central Europe, as shown by the contracts signed in Hungary with Delphi (electronics assembly) and Michelin (tires), and in Poland with Daicel (airbags).

**Western Europe**  
Austria  
Belgium  
France  
Germany  
Luxembourg  
Switzerland  
Netherlands  
United Kingdom

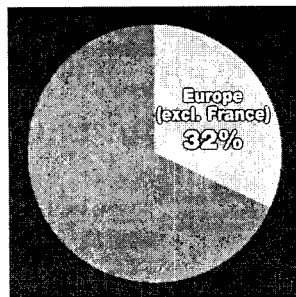
**Southern Europe**  
Greece  
Italy  
Portugal  
Spain

**Northern Europe**  
Denmark  
Finland  
Norway  
Sweden

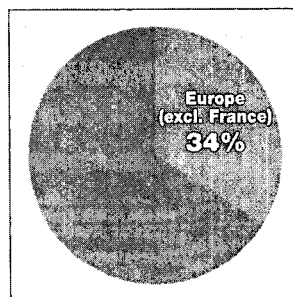
**Eastern Europe**  
Bulgaria  
Czech Republic  
Hungary  
Poland  
Romania  
Russia  
Slovakia  
Ukraine



**Employees**



**Sales**



- Industrial Customers
- ▨ Large Industries
- Electronics
- ▤ Healthcare
- Engineering
- ▲ Research Center

# Europe (excluding France), a new dimension

*In Europe, the high point of 2004 was the acquisition of Messer's activities in Germany and the United Kingdom. In a climate of moderate economic growth, Air Liquide continued to progress, particularly in Large Industries, with the ramp-up of new hydrogen units. Healthcare operations also recorded good performances, in Germany and Southern Europe in particular.*

## **Messer: an exceptional opportunity**

The acquisition of Messer's activities in Germany and the United Kingdom was the major event of 2004. It has opened up new opportunities for Air Liquide in the heart of Europe, and enabled the Group to establish a targeted presence in the United Kingdom. Through this transaction, the Group more than doubled its sales in Germany gaining many new customers, in particular in the Ruhr and Rhine region. Air Liquide is now the number two supplier of industrial gases in this country. The project for acquisition of Messer's activities was carried out diligently and effectively, in line with initial estimates, particularly in terms of synergies. Divestments in Germany required by the European Commission were realized on schedule and, as a result, the acquisition was completed in less than 11 months. A new organization at the European level was established on January 1, 2005, centered on a European Management Committee, aimed at strengthening cooperation between the Group's operations across Europe.

The committed involvement of the teams in Germany resulted in advances both in the integration process and in business development in the various sectors. For example, the Group broadened its service offer to Deutsche BP, doubling the supply of hydrogen to the Gelsenkirchen refinery in northern Ruhr, in order to reduce the sulfur content of fuels produced. It also signed a contract with BGH, a manufacturer of specialty steels, to supply air gases along with storage and distribution equipment at its Siegen site. In Electronics, Air Liquide strengthened its partnership with AMD in Dresden. The Group was selected to supply ultra-pure gases, energy and services for the new 300 mm fab that will begin production in 2006.

## **Heading East**

This new, significant step forward in Germany, combined with a stronger position in Austria following the acquisition of Aga's operations in 2001, provides the Group with a solid base to speed up development in central Europe. On the Schwechat site, near Vienna, for instance, the Group set up a new air separation unit with a capacity five times greater than the current unit. Its location near Slovakia, the Czech Republic and Hungary, enables the Group to meet the growing need for industrial gases in these countries, which have recently joined the European Union. In 2004, Air Liquide extended its long term contracts with Borealis, a chemicals manufacturer, and OMV, a refinery, two large companies operating in Schwechat, Austria.

**Markus Sieverding**  
Chief Executive Officer  
of Air Liquide Germany



## ***What impressed you most during the Messer acquisition process in Germany?***

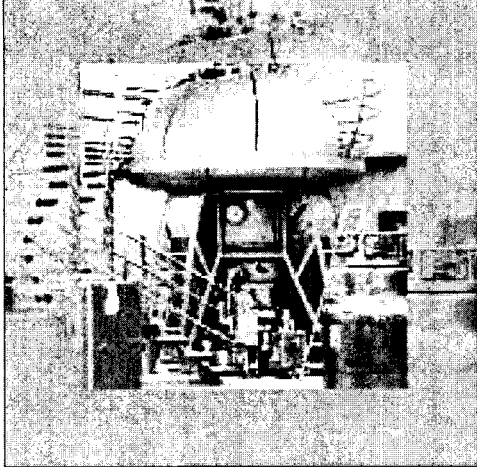
It was amazing to see the incredible amount of work done in such a short time. In less than a year, and simultaneously, we had to integrate the teams, respond to the European Commission's numerous inquiries, carry out the required divestments and, of course, properly manage daily affairs! I am proud to say that we achieved our integration and organizational goals, as well as the initial synergies.

## ***How did you meet this challenge?***

The teams involved worked miracles thanks to their dedication to the project. I was particularly impressed with the teams from both Air Liquide and Messer, their level of commitment, and their drive to create the new organization.

## ***Where does Germany stand in the new European organization of Air Liquide?***

The inherent strength of the German economy, the country's strategic location in the heart of Europe and Air Liquide's stronger position there are all assets for the Group's development in central and eastern European countries.



### ■ Helium for research, Sweden

Air Liquide signed a contract to supply helium to one of the largest nuclear magnetic resonance spectrometers in the world, recently commissioned in the Göteborg laboratory. Liquid helium is needed to cool the giant magnet centrally located inside the spectrometer, a device used in macromolecular biology studies.



### A dynamic island, Sicily

Sicily is an important development center in Italy. Hydrogen contracts signed in 2004 with two refineries in Priolo strengthen the Group's activities in this refining and petrochemical complex, where it already supplies very large quantities of oxygen to ISAB Energy for the gasification of heavy petroleum residues. Air Liquide is also involved in Catania at the STMicroelectronics site, an important Group customer in Electronics.

## Hydrogen keeps its promises in Large Industries

Reflecting the Group's ever broadening offer to Large Industries customers, hydrogen continued to make significant progress. Production levels at the hydrogen production unit in Antwerp, Belgium, increased more quickly than expected and new customers have been connected to the Air Liquide pipeline network. This unit supplies the petrochemical and refinery complex in the ports of Antwerp and Rotterdam, Netherlands. Several refineries have also benefited from Air Liquide's offer to deliver additional hydrogen on demand. Spot sales in hydrogen represented significant volumes in 2004. In addition, a carbon monoxide production unit will start production on this site in Antwerp in the first half of 2005. Hydrogen is also making gains in Italy, where Air Liquide signed two major contracts with ERG Raffinerie Méditerranée and Esso Italiana in the refining complex in Priolo, Sicily.

### A large cogeneration project in Rotterdam

Supply of energy and steam by cogeneration from natural gas is yet another example of the Group's enlarged offer. Shell Nederland Raffinaderij B.V. in Pernis, near Rotterdam, chose this more efficient and less polluting solution to meet its steam needs. Air Liquide will build a very large unit (about 700 t/hour of steam and 300 MW of electricity) to begin operations in 2007. Most of the electricity produced will be sold to ENECO Energie, a large utilities supplier in the Netherlands.

### Always going further in food safety

The Group's offer to Industrial Customers is progressing in the metal manufacturing, glass, laboratory gases, pharmacy and food processing sectors. In food processing, Air Liquide has developed new solutions to meet the growing requirements in food safety. A case in point is Aligal Water, launched in Italy for manufacturers of carbonated mineral waters. With this service, Air Liquide provides its customers with an unprecedented level of quality control for carbon dioxide, with analyses that are increasingly effective at detecting impurities. Aligal Water also includes batch traceability, a certificate of analysis with each delivery and remote monitoring of stock.

### Metrology on a European scale

Services are growing, whether they are directly or indirectly related to the use of gases. Metrology, in particular, is moving in the fast lane. Metrology, a critical aspect of the manufacturing process, involves the control and calibration of all measurement devices needed to run a production site. In 2004, Air Liquide completed the acquisition of Livingston metrology operations and acquired an interest in MG Tarature, Italy.



### Equipment and facilities

Until now, entities in European countries procured minor parts needed in gas distribution facilities independently (taps, thermostats, valves, etc.). Using integrated software, such purchasing will soon be managed centrally through a European platform that will operate a single store and make fast and efficient deliveries throughout Europe. Response times will improve and costs will be reduced.

All Group metrology units are now arranged under the Trescal brand, which serves 13,500 customers in nine European countries. The successes of 2004 include, in Germany, the extension of the partnership with Alcatel, already an Air Liquide customer in France, to monitor equipment at its site in Stuttgart, and the growing momentum of the contract with Eurocopter (EADS) in Donauwörth.

### New energy-related markets in welding-cutting

The Group's welding-cutting operations, managed by Air Liquide Welding, are based on the manufacturing and marketing of equipment (welding units, metal-cutting machines), consumables (electrodes, wire, etc.) and related services. Industrial rationalization in this activity continued in 2004. The good level of European business was supplemented by new developments in the highly focused energy market: applications tied to hydrocarbon production (Iran, Russia), manufacture of welded tubing for transporting oil and gas (India, Thailand, Ukraine), and the construction of power plants (China).



#### Spain

Metal cutting by thermal lance using oxygen.



### OPERA information system, Europe

The objective of the new OPERA information system is to have all European entities adopt common operating principles and create new synergies among subsidiaries in accounting, production, logistics, financial reporting, order follow-up, purchasing, etc.

Eventually, everyone will speak the same language. Aside from better business visibility in real time, achieving consistency will result in better customer service, streamlined processes, and therefore, lower costs. In early 2005, OPERA was implemented in five European countries (France, Italy, Switzerland, Portugal and Belgium) with 3,500 users.



## Fighting nosocomial infections

An essential component in Air Liquide's offer to hospitals is hygiene, which helps combat nosocomial illnesses along three dimensions. First, in the sterilization of surgical instruments, Omasa, a Group entity specializing in this field, is the European leader. In 2004, it grew steadily, in particular in France, Italy (Umberto I Polyclinic in Rome) and Spain (Murcia Hospital). Second, disinfection products for hands, surfaces, instruments, air, etc. are managed by the subsidiaries Anios in France and Schülke & Mayr in Germany. This activity is also experiencing strong growth. In 2004, the Group acquired Arcana, a company in Austria specializing in disinfection products for hospitals and healthcare professionals. It also secured a majority interest in Unident in Switzerland, a leader in the field of disinfection and sterilization for the dental sector. Third, the Group provides hygiene-related services such as air network monitoring and cleaning, and staff training.

## Continued growth in homecare for respiratory illnesses

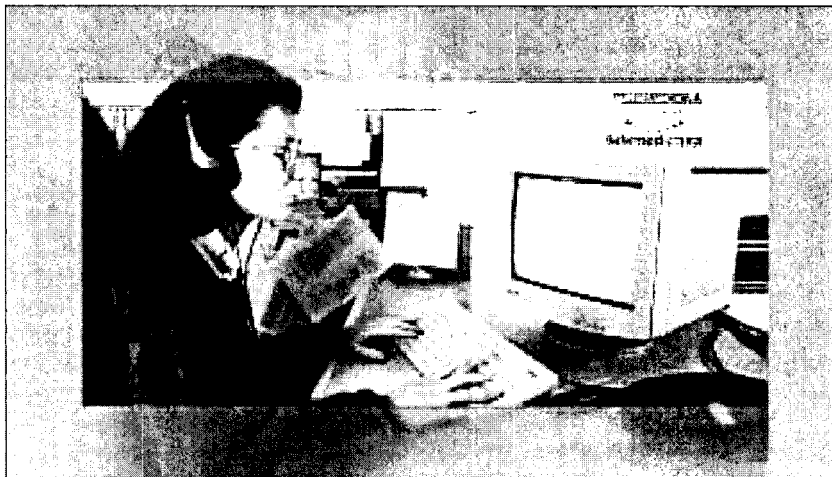
For the most part, the Group's Healthcare activities are concentrated in Europe, where it is recording significant growth rates, especially in homecare. These activities are primarily concerned with two major respiratory pathologies: chronic obstructive pulmonary disease (COPD), known as "smoker's illness", and sleep apnea, whose treatment is gaining recognition in Europe. Air Liquide Santé plays a crucial part in both instances, and the number of patients treated at home is constantly increasing. The Group develops solutions that provide greater freedom of movement, and a range of services that simplify lives of patients and those around them. Beyond respiratory illnesses, Air Liquide's service offer also includes diabetes management services (insulin pumps) and treatments via perfusion.

## Gases are seen as pharmaceutical products in an increasing number of countries

In the hospital, the Group's offer includes medical gases, hygiene solutions, equipment and many other services, in particular in the sterilization field. After France, Belgium and Germany, Spain raised medical gases to the status of pharmaceutical products in 2004 (oxygen, nitrous oxide, etc.).

The use of Kalinox, an analgesic gas, and Kinnox, used in the treatment of pulmonary hypertension, is steadily growing in European countries.

Patents have been obtained for new therapeutic gases used, for example, in the asthma treatment (oxygen-helium mix), or stroke prevention (xenon). Authorization procedures to market these products are under way.



## Healthcare coordination, Italy

Medicasa, an Air Liquide Santé subsidiary, goes beyond treating patients by ensuring the coordination between the various medical staff, suppliers, and payment organizations.

# France, growing through services

*In 2004, the Group experienced steady growth in France in a fairly slow economic environment. Growth was more sustained in specific sectors, such as Healthcare, Services, Engineering and Construction. The start-up of a major hydrogen unit in the Large Industries sector was a highlight, along with an upturn in Welding activities.*

## Broad service offers for Industrial Customers

Reflecting Air Liquide's strategy to develop high value-added solutions, services in France performed strongly in all markets in 2004.

The welding-cutting sector recorded close to +20% growth. The launch of the Cap Optima solution, for instance, attracted several customers, in particular Sotralentz, one of the leading European manufacturers of tunnel-boring machines and wire mesh.

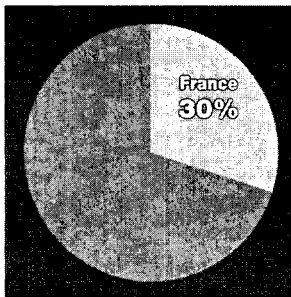
This solution improved the customer's ability to manage production and its efficiency by creating a network of 60 sensors installed on welding units in three workshops, and connected remotely to a central computer processing all production data.

The Group's offer to pharmacy customers, centering on the Phargalis solution that combines medical gases and services, has also expanded. In addition, Air Liquide provides a complementary service in support of customers' efforts to increase safety in manufacturing processes. This service consists in testing the performance of their gas networks up to the point of use, and includes auditing and performing physio-chemical and microbiological analyses at critical points of the network.

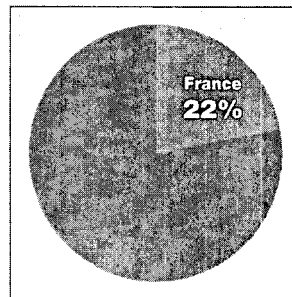
Another component of Air Liquide's offer, Local Customer Support teams, is growing. Based on-site, these teams take charge of all gas-related activities: from delivery, to equipment maintenance and installations audit. Progress in this sector in 2004 was particularly significant in research laboratories, chemicals, aeronautics and the glass industry. There are now some 100 Local Customer Support teams in France.

Metrology also recorded significant successes. Trescal, for example, signed a framework agreement with Faurecia, an equipment manufacturer, which will eventually involve all of its sites in France. Such trends clearly show the desire of customers to develop broad partnerships with national and international service providers.

**Employees**



**Sales**



## ■ New generation of burners

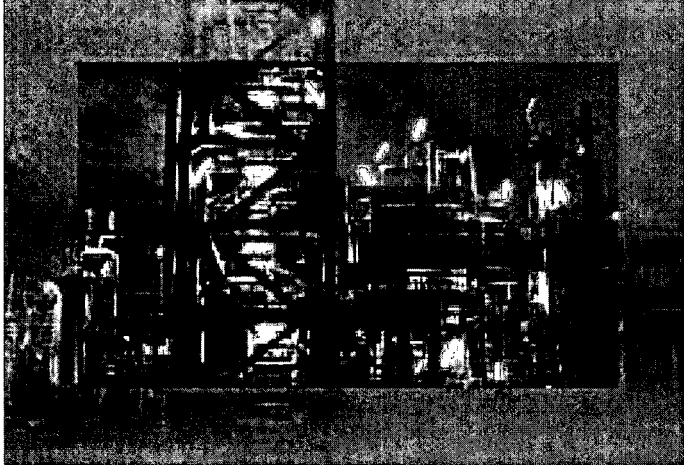
Alglass Sun is a new-generation burner for glass furnaces that is particularly flexible and emits remarkably few nitrous oxides. This technology will be installed long term for the first time in a new furnace for Newel in Châteauroux, France, where Pyrex-brand household glassware is manufactured. Alglass Sun is supported by the ADEME (the French Agency for Environment and Energy Management) for its contribution to reducing polluting emissions.



## Cylinder services: @ Passrel

Today, every customer supplied by Air Liquide with cylinders in France has access to the new Passrel service. Using a secure Internet portal, customers have access to personalized data: status of transactions with Air Liquide, gas consumption, logistical information and on-line ordering. Soon, customers will be able to view their contracts online as well. Passrel is also a quarterly magazine featuring additional information and an annual business summary, which is mailed to customers.





### ■ Port-Jérôme, Normandy

On January 18, 2005, Air Liquide and Esso commissioned the hydrogen production facility that will supply the new fuel desulfurizing unit at the refinery in Port-Jérôme, near Le Havre. To deliver hydrogen, produced by reforming natural gas, Air Liquide's engineering teams set up this state-of-the-art facility immediately adjacent to the customer's site.

### Close partnerships in Electronics

In Electronics, at the Altis Semiconductor site in Corbeil-Essone, near Paris, Air Liquide set up an information system (Fabnet) designed to monitor, in real time, the entire supply-chain for all products being used in the fab: gases, liquid products, raw materials, etc. Altogether, 65 on-site employees provide all the services.

Furthermore, the Group is supplying support products and services to the latest-generation 300 mm fab in its ramp-up stage at the Crolles 2 site, near Grenoble. This fab is the outcome of an alliance between STMicroelectronics, Philips and Motorola. STMicroelectronics also invited Air Liquide to provide all services related to the use of gases and liquid chemicals to its fab in Rousset, near Aix-en-Provence.

### Healthcare: constantly making progress in the treatment of respiratory illnesses and services to hospitals

Today, France is Air Liquide's largest market for homecare services. The Group supports nearly 300,000 patients, most of whom suffer from respiratory illnesses, but also diabetes or illnesses requiring treatment by perfusion. In 2004, in the homecare sector, growth was particularly strong in the treatment of sleep apnea and the follow-up of diabetic patients on insulin pumps.

In 2004, the VitalAire subsidiary launched an oxygen therapy monitoring station in order to contribute to a better understanding of respiratory illnesses and their treatment. A study was conducted on oxygen use practices with the help of 120 hospital chest specialists and 600 of their patients. This study is under the supervision of an independent scientific committee. Similarly, a second study is under way on home treatment of diabetes with insulin pumps.

In hospitals, the therapeutic gases Kalinox (analgesic) and Kinox (treatment of pulmonary hypertension) are experiencing strong growth. Kalinox is now available in Présence cylinders, a convenient and much appreciated delivery method.

Customer service is also moving forward: hospitals can now access their medical gas consumption and stock levels through the Extranet portal on the Group's site. New modules on gas orders, safety and training will be available soon.

In terms of hospital hygiene, a public health priority, Air Liquide Santé signed a major surgical instrument sterilization contract with the main hospital in Marseilles. It also inaugurated its first center for the outsourcing of sterilization services (outside the hospital) near Paris. In addition, Anios, its subsidiary specializing in disinfection products, recorded a good performance in 2004, and extended the range of its services in the dental sector through the acquisition of Unident, a Swiss company.

### Conservation of prepared foods

Today, institutional food services are increasingly popular with businesses and employees alike.

Air Liquide has developed an application using carbon dioxide for the cold storage of foods prepared by central kitchens for large communities. This solution, developed in partnership with Iseco, a manufacturer of food trolleys, was first adopted in 2004 in Saint-Etienne.

### ■ Sterilization, Bonneuil-sur-Marne

This sterilization center near Paris was inaugurated in October, 2004. Operating around the clock, it is managed by Omasa, a specialized entity of Air Liquide Santé, and already provides medical instrument sterilization services to several institutions around Paris.



### Cosmetics and pharmaceuticals

Air Liquide is active in specialty chemicals through its SEPPIC subsidiary, which manufactures and markets surfactant products worldwide, particularly for cosmetics and pharmaceuticals. In September, 2004, it opened a pearling unit at its site in Castres, in the south of France. Emulsifying agents are transformed into pearls, which are easier for industrial customers to use and measure out. They are manufactured from fatty alcohol and vegetable sugars, both renewable raw materials. SEPPIC is also established in Germany, Italy, Belgium, the United Kingdom, the United States and China, and has over 600 employees.



### Sleep apnea

Sleep apnea occurs when, during sleep, breathing stops for short periods. It is often accompanied by the unpleasant sound of snoring. Sleep apnea increases the patient's cardiovascular risk, and results in periods of daytime drowsiness with the risk of accidents, particularly while driving. This pathology, first recognized twenty years ago, is treated with nighttime ventilation via a mask.

This treatment is beginning to be covered by health insurance organizations in a growing number of countries. However, sleep apnea is still under-diagnosed: it could affect millions of people in France.



### ■ Modeling air flows

Pfizer, the number one supplier in the pharmaceutical industry worldwide, adopted the air flow modeling solution developed by Air Liquide: Exp'Air. Both a diagnostic and decision-assistance tool, it contributes to guaranteeing the quality of ambient air in pharmaceutical manufacturing units in order to avoid contamination risks.



**North America**  
 Canada  
 United States

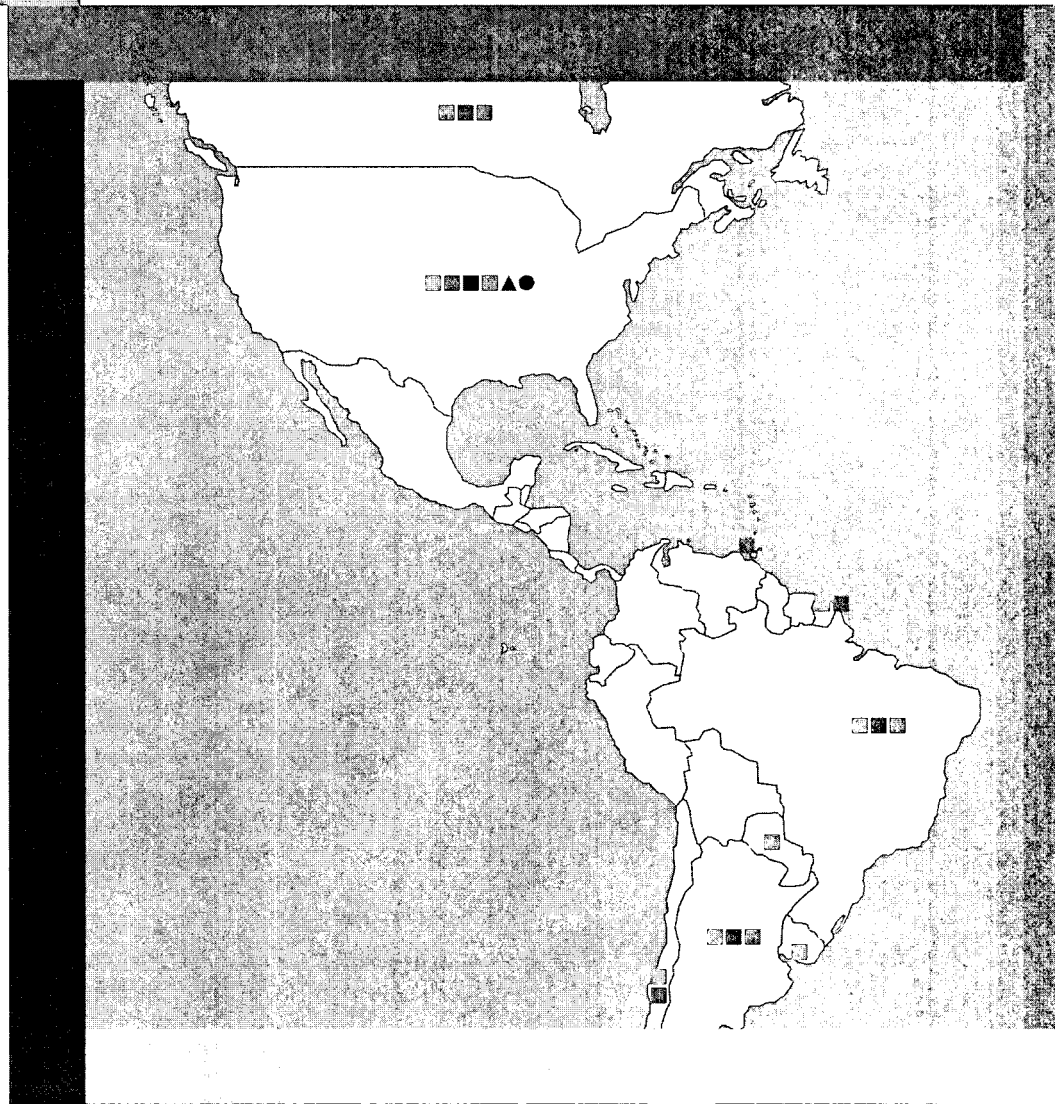
**South America**  
 Argentina  
 Brazil  
 Chile  
 French Guiana  
 Paraguay  
 Uruguay

**West Indies**  
 Guadeloupe  
 Martinique  
 Trinidad and Tobago

**San Francisco bridge**

Liquid nitrogen cools everything, even concrete!

This gas was provided by Air Liquide to reduce the temperature of concrete to 10°C while casting the foundations for the future San Francisco Bridge in the United States. This was a massive task in itself: 227,000 liters of liquid nitrogen injected continually over 40 hours into 10,000 tonnes of concrete.



- Industrial Customers
- ▨ Large Industries
- Electronics
- ▤ Healthcare
- Engineering
- ▲ Research Center

# Americas, a dynamic year

*All Air Liquide activities experienced steady growth in the Americas, boosted by a particularly favorable economic climate in North America. The sale of liquid gases recorded strong growth with contracts being signed and units starting up in the hydrogen business. The acquisition of Messer's activities was a key event in the United States in 2004.*

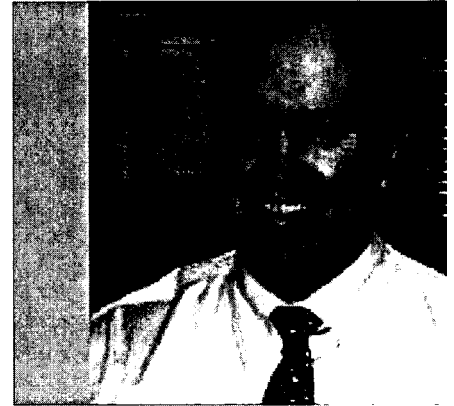
## **Messer: an exceptional opportunity**

Through the acquisition of Messer, Air Liquide is now the number three supplier of industrial and medical gases in the United States, and is very close behind the number two. The acquired Messer activities were established mainly in the North and East, which accounts for over 50% of American industrial production. Until then, Air Liquide operated primarily in the western and southern regions of the United States. This complementary geographic presence provides the Group with excellent national coverage. The integration of Messer's activities was completed consistent with initial projections, for both the divestments required by the Federal Trade Commission, and the rapid integration and achievement of synergies.

## **Hydrogen: many successes**

In Large Industries, 2004 was marked by many successes in the United States. Refineries are putting the final touches in their efforts to comply with the new regulations on reducing sulfur content of fuels. Since hydrogen plays a key role in desulfurizing processes, its consumption is growing significantly, while refineries are increasingly outsourcing their requirements. In 2004, Air Liquide launched a very large hydrogen production unit at the Chevron Texaco site in El Segundo in California. Moreover, it won a major contract with a large refinery in Texas, eventually resulting in the construction of a large hydrogen production unit connected to the Group's existing pipeline network along the Gulf of Mexico. Air Liquide is strengthening its position in this high-growth market in a key refinery area. It is now the hydrogen partner for each of the six refineries in Corpus Christi, Texas.

**Woody Garmon**  
President Large Industries  
Americas



## **How is the hydrogen market for refineries developing in North America?**

In North America, particularly in the United States, refinery consumption of hydrogen has experienced strong growth in recent years. Ten years ago, refineries were completely self-reliant, but today, many of them are facing much greater needs, and therefore turn to outside partners, such as Air Liquide.

## **What is Air Liquide's position in this market?**

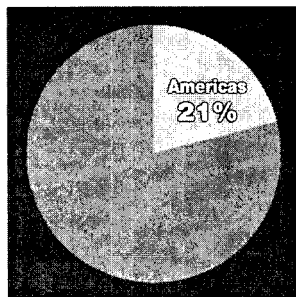
Within ten years, Air Liquide has become one of the leading suppliers of hydrogen to American refineries. This market doubled between 2000 and 2004, and will double again by 2007 to reach 85 million m<sup>3</sup> a day.

By that time, Air Liquide should be providing close to 16% of the hydrogen used by refineries in the United States.

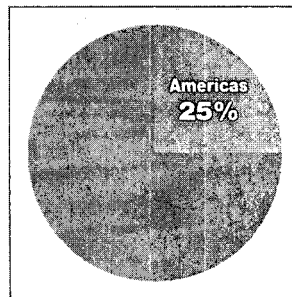
## **What is the Group's development strategy in this field?**

Air Liquide generally supplies hydrogen to a cluster of refineries: their cumulative needs result in economies of scale and investments in large-capacity, leading-edge production units. This strategy is a source of value, both for the customers and the Group.

**Employees**



**Sales**



## ■ Diving

Aqualung, an Air Liquide subsidiary, designs and markets worldwide a full range of professional and recreational diving equipment and products. In the United States, this business performed strongly in 2004, particularly due to the launch of new diving equipment and the popularity of the market for competitive swimming.

## Large quantities of oxygen for hydrocarbons in Canada

Mining large deposits of heavy hydrocarbons in the Athabasca oil sands in Alberta, Canada, is another growth driver in the field of energy. This activity experienced accelerated growth with the rise in oil and natural gas prices. Operators are gradually upgrading their processes, more respectful of the environment than traditional mining techniques, and for which very large quantities of oxygen are needed. Thus, in 2004, Air Liquide signed a contract with OPTI-Nexen to build an oxygen unit for partial gasification of hydrocarbons extracted from the subsoil. This unit, producing 3,800 tonnes a day, will be the largest in North America. Air Liquide also expanded its service offer to the oil and gas industry in Western Canada, particularly in carbon dioxide and nitrogen for the assisted recovery of hydrocarbons.

Boosted by the economic recovery, sales of air gases by pipeline also recorded a strong performance in the Americas, particularly in the chemical, and iron and steel industries. In this latter sector, one should note the increase in the air gas supply to Siderar in Argentina, and a major contract signed with North American Stainless in the United States.

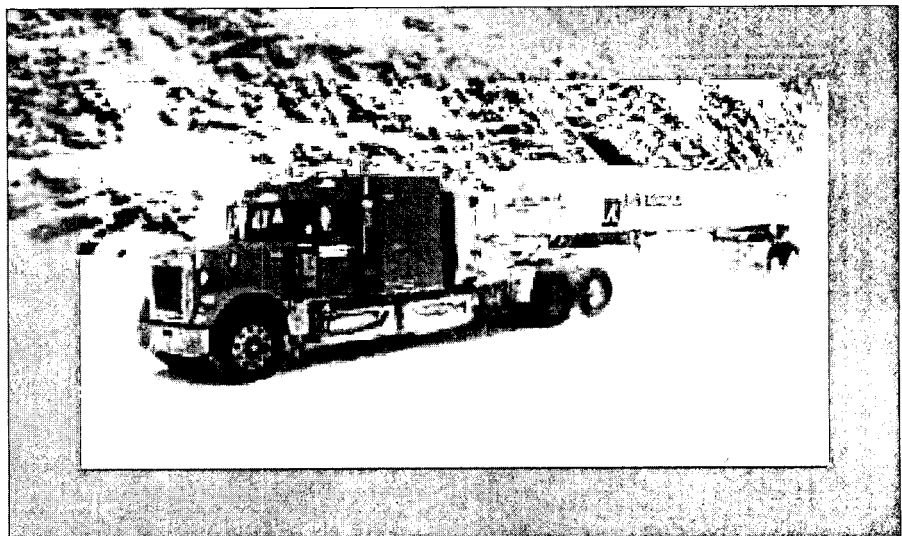
## Electronics: strengthening the partnership with Texas Instruments

The strengthened partnership with Texas Instruments (TI) was the highlight of the year in Electronics. Air Liquide secured a new exclusive 15-year contract to supply ultra-pure gases, equipment and related services to TI's new 300 mm fab in Richardson, Texas. Similarly, all existing carrier gas contracts were renewed at the very important Dallas site. Air Liquide's partnership with TI extends to all of the manufacturer's sites in the United States. Some 300 Group employees work in these semiconductor production units to ensure the safety, quality and reliability of gas and fluid supply up to the point of use in clean rooms: this is the Total Gas and Chemical Management (TGCM) service. Air Liquide Balazs teams top off the service offer with their expertise in fluid analysis.

## High-quality wines

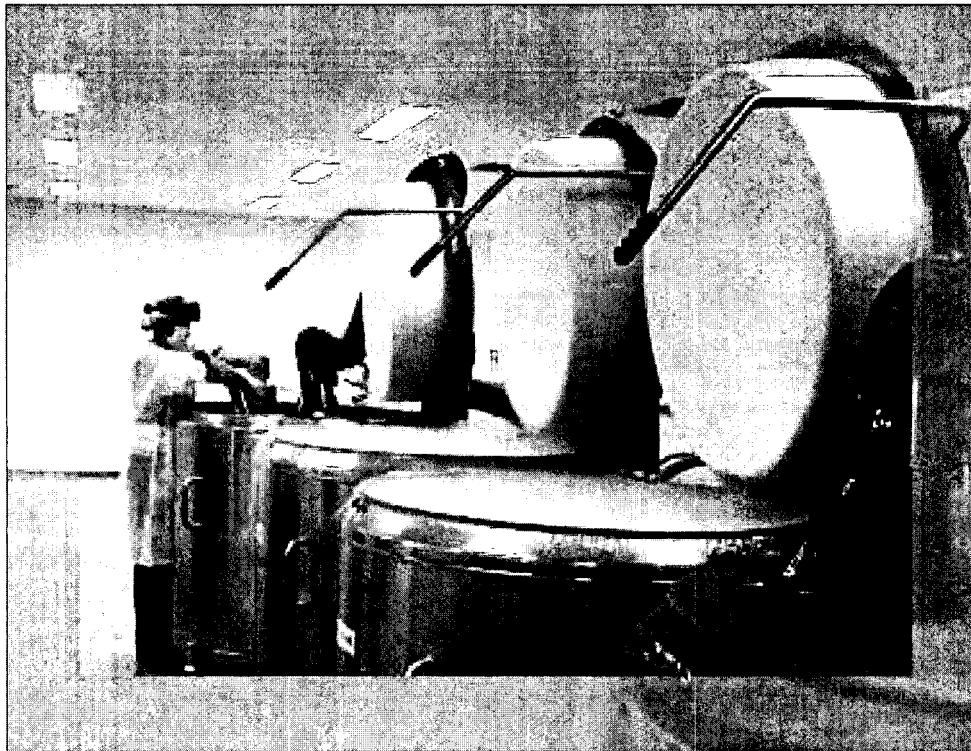
To make quality wine, it is important to keep grapes cold to prevent oxidation. The Boréal carbon dioxide-based protection and cooling system was first developed in the field in Italy, and has quickly won over many European winemakers (in Spain, France, Greece and Italy). It was introduced in the United States during the last grape harvest in California.

## ■ Liquid oxygen delivery, Alaska



### ■ Cryoconservation, Brazil

Air Liquide signed a major contract in Rio de Janeiro with Cell Preserve for the cryoconservation of biological tissues.



### Laboratory gases have the wind in their sails

The Group's liquid gas services for Industrial Customers experienced strong growth in 2004, particularly in the food processing, thermal treatment, combustion and environmental application sectors in the United States. Many on-site gas production units were set up for chemical, metallurgy and aeronautic customers. Cylinder gas sales also increased, particularly in laboratory gases. These gases are essential for calibrating analyzers used, for example, to monitor automobile engine emissions which are subject to increasingly strict regulations.

The field of combustion is another one of Air Liquide's strengths as the Group is constantly developing new oxygen-based technologies to reduce noxious emissions into the atmosphere, improve furnace productivity, and facilitate the recovery of carbon dioxide following production. In 2004, Air Liquide signed two major contracts in the United States for the supply of oxygen to aluminum manufacturers' smelting furnaces.

The North American technical platform, a team of experts facilitating deployment of the Group's innovative solutions, also grew steadily in 2004. It greatly contributed to the introduction of a new service for deep-freezing food products using latest-generation tunnels from the Crustflow line.

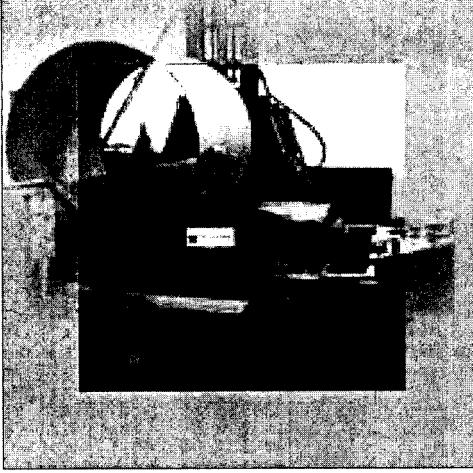


**OPAL**  
Efficiency

### Cylinder recovery, Chile

In June, 2004, Air Liquide embarked on a large-scale program in Chile to recover unused cylinders from customers using low quantities of gas. All Air Liquide centers in the country were involved in this project, which resulted in the collection of nearly 500 cylinders in four months. This approach has been adopted permanently as part of the larger plan to improve operational efficiency and optimize investments. The subsidiary in Uruguay has recently followed suit.





**Pacific**

Australia  
New Caledonia  
New Zealand  
Polynesia

**Emerging Asia**

China  
India

**Southeast Asia**

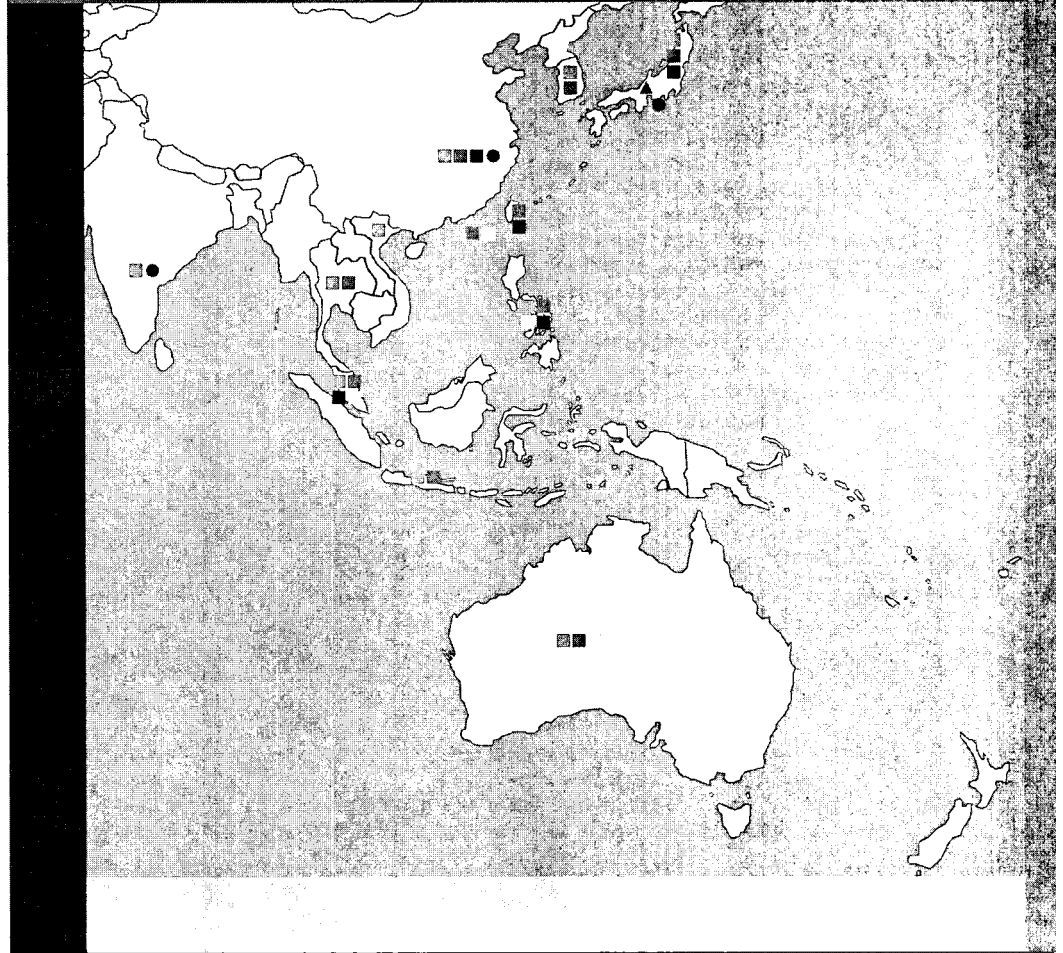
Indonesia  
Malaysia  
Philippines  
Singapore  
Thailand  
Vietnam

**Northeast Asia**

Japan  
South Korea  
Taiwan

**■ Engineering, China**

The Group is setting up large air gas units to service major contracts signed in Asia and increase gas production capacity, in gaseous or liquid form, to meet the requirements of the very dynamic Industrial Customers market. The engineering center in Hangzhou, established in 1995 and located near Shanghai, currently has more than 200 employees. Specializing in the production of large units for the Group and third parties, it plays a key role in Air Liquide's development in Asia. In 2004, the center secured four major contracts with large chemical, and iron and steel groups.



**New advances in steel, South Korea**

The South Korean group Posco is one of the world's leading companies in the steel industry. Air Liquide has already supplied 13 turn-key air separation units to Posco in South Korea, which is now setting up a stainless steel plant in China, close to Shanghai. Air Liquide will design and operate a new air separation unit for Posco with enough production capacity to supply other customers in the area as well.

- Industrial Customers
- Large Industries
- Electronics
- Healthcare
- Engineering
- ▲ Research Center

# Asia-Pacific, accelerated growth

*In 2004, Air Liquide took advantage of all-round growth in Asia, notably in the northern and eastern parts of the continent where growth was especially sustained. The Group strengthened its Electronics operations in Japan, expanded across the board in China, secured key positions in the flat screen business in Taiwan, and achieved very good results in Large Industries in South Korea...*

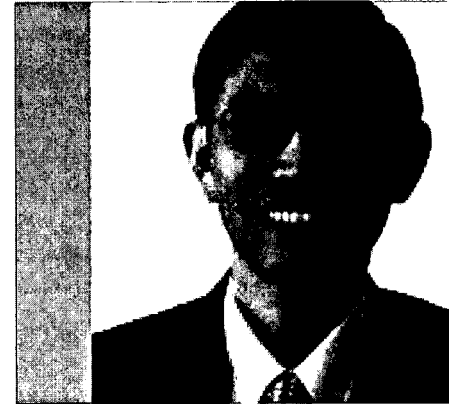
## China's east coast is booming

Building on the remarkable economic growth in China, Air Liquide has notably strengthened its presence there in 2004: more and more contracts being signed, especially in the steel and electronics sectors with nearly +40% growth in sales; the decision to invest an average of 100 million euros a year over the next five years, over 200 employees hired, etc. The Group has been in China for many years, initially established in the three large economic basins of Guangdong-Hong Kong, Shanghai, and Beijing-Tianjin. Today, Air Liquide is expanding its activities to new high-potential areas such as the Shandong peninsula.

## Major contracts signed in 2004

The Shanghai area has experienced the most spectacular growth in China. Air Liquide signed an agreement with ZPSS, a subsidiary of the South Korean steelmaker Posco, to supply substantial volumes of oxygen, nitrogen and argon to its plant under construction in Zhangjiagang, 130 km from Shanghai, on the Yangtze River. The Group also strengthened its position in the Caojing chemical park south of Shanghai. An air separation unit started up in 2004 to supply major international customers via pipeline. In 2005, a hydrogen and carbon monoxide production unit will start operating in this same complex. Further south, Air Liquide's activities are flourishing in the Guangdong Province and Hong Kong. Signing a large steel contract there was among the highlights of 2004. In the Beijing-Tianjin area to the north, Electronics achieved the main success this year. The Group will supply ultra-pure nitrogen to BOE-OT, the first fully-owned Chinese producer of TFT-LCD flat screens. A few hundred kilometers further away, the Shangdong peninsula has become a new industrial development basin. Air Liquide won two major contracts to supply nitrogen by pipeline to Li Dong Chemicals and air gases to Chinese steelmaker Rizhao.

**Mok Kwong Weng**  
Regional Director  
for North-East Asia



## How does Air Liquide benefit from growth in Asia?

The Group has been operating on this continent for many years, and it is now entering a new stage, as it plans to invest one billion euros in Asia over the next five years, half of which in China. Many international companies are moving into or strengthening their presence in Asia, and by joining forces with the best of them, Air Liquide is strengthening its foundation to sustain growth in the years to come.

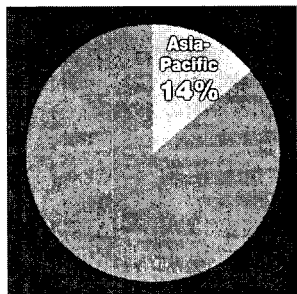
## What assets can the Group count on in this area of the world, especially in China?

One of our main assets is the first-rate engineering center in Hangzhou, close to Shanghai. Its ability to design gas production units in-house is a key competitive advantage. This center allows us to make very competitive bids to major customers at the same time ensuring supply to smaller ones locally.

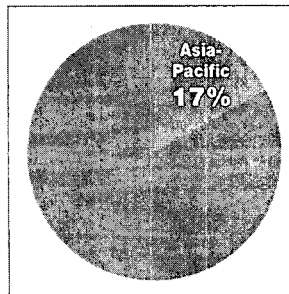
## What is the secret behind Air Liquide's success in China?

The excellent quality of our teams is a major strength behind our success. Diverse cultures, experiences and skills are blending very effectively and result in an exceptionally powerful combination.

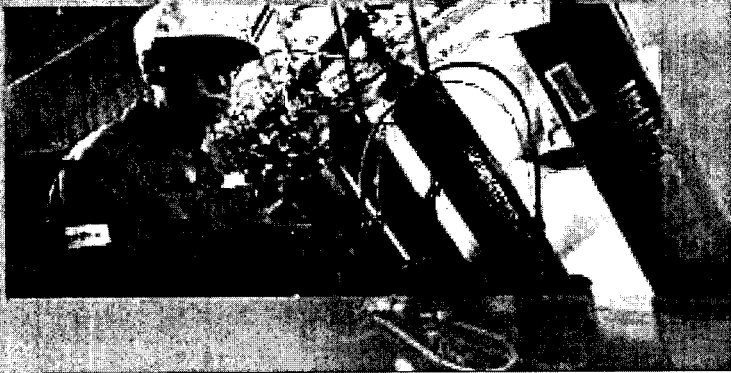
**Employees**



**Sales**







■ **Japan Air Gases, Japan**  
Medical gas center

**Japan Air Gases: a base strengthened to benefit more fully from the Japanese recovery**

In terms of sales, Japan is by far the Group's largest market in Asia. Established in 2003, Japan Air Gases (JAG: 55% Air Liquide, 45% BOC) achieved five billion yen in synergies in two years, which was earlier than anticipated.

JAG was ready when the Japanese economy returned to growth in 2004, which resulted in robust earnings and a strengthened market share. In Electronics, sales rose significantly and major contracts were signed to supply gas and equipment to expanding fabs and new fab plants. The Group was also successful in the chemical, iron and steel, and glass industries.

**TFT-LCD flat screens: 30% to 40% growth**

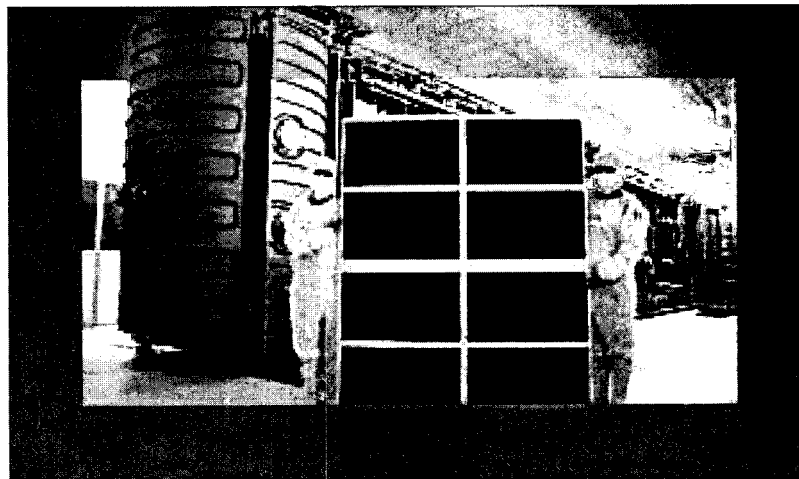
Whether in our family or professional lives, flat screens from Asia are showing up all around us. Those based on TFT-LCD technology are especially prevalent and rely heavily on ultra-pure gases, providing a key growth driver for years to come.

For the past two years, Air Liquide has secured 40% of new business opportunities in this market primarily based in Japan, Taiwan, South Korea and China. The Group is making progress in the Taichung Scientific Park in Taiwan through a new contract signed with AUO, the number three flat screen manufacturer in the world. Air Liquide also enjoyed successes with LG Philips in South Korea, via a joint-venture named Daesung Sanso, and BOE in China, near Beijing.

The semi-conductor industry is not lagging behind: Air Liquide signed several contracts with major electronics players, especially in Japan (Toshiba, Sony, etc.) and in Singapore, where, among other things, it has been supporting the new developments of STMicroelectronics. Overall, the Group achieved over 50% of its Electronics sales in Asia, where it is very well positioned. This is why, very early in 2004, the Group's worldwide Electronics head office moved to Tokyo.

■ **Glass for flat screens**

Glass used in manufacturing flat screens is a high-quality "technical" glass. TFT-LCD screens, for example, are composed of two sheets of specialty glass, 0.7 mm thick. High-temperature furnaces (approximately 1,650°C), using large quantities of oxygen, are needed to melt this glass. Sheet forming comes next with a float process involving stretching glass sheets over a tin bath. This process involves nitrogen and hydrogen. Air Liquide supplies the technology to use these gases, the Alglass line of burners for instance, which also considerably reduces the emissions of nitrous oxides (NOx). The Group signed, and began to implement, several major contracts in 2004, in particular in Japan (Asahi Glass) and in Taiwan (Corning, NH Techno).



### ■ Solar cells, Philippines

Solar cells turn solar energy into electricity. SunPower Corporation, the industry leader, chose Air Liquide to supply and manage all ultra-pure and specialty gases at its new unit near Manila.



### Developments in Southeast Asia and Australia

The Group has also performed well in Southeast Asia and in Australia, where Air Liquide signed a 15-year contract with Comalco Aluminium, a subsidiary of the international mining group Rio Tinto, to supply air gases to its future alumina refinery in Gladstone, Queensland. With this success, Air Liquide will build its first air gas separation unit in this state in northeastern Australia. This unit will also produce liquid gas for Industrial Customers. The Group has therefore strengthened its partnership with Rio Tinto, and will supply another one of its subsidiaries, Hls melt, in Western Australia, at its new generation pig iron production site.

In Southeast Asia, Air Liquide's Vietnamese subsidiary, until now mostly focused on northern Vietnam, has recently won its first contract near Ho Chi Minh City, in the south, with a subsidiary of the Australian steelmaker Bluescope.

### Air Liquide solidarity

Air Liquide is active in many Asian countries, especially those hard hit by the tsunami disaster: India, Thailand and Indonesia. Since December 26, the nearest entities mobilized their resources to ensure an emergency supply of medical gases. In addition to financial assistance, Air Liquide also donated products and equipment, including several tons of disinfection products and emergency respirators.

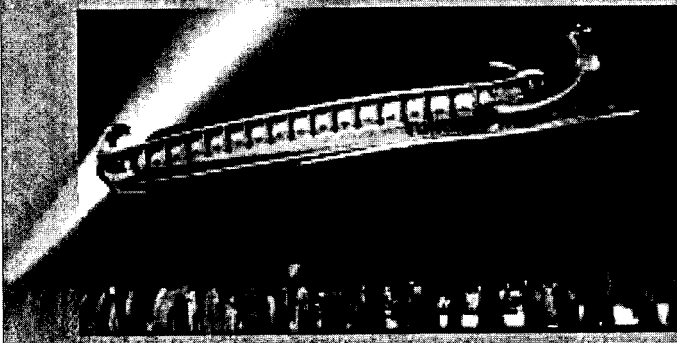
### ■ Medical equipment, India

In 2004, the Horus intensive-care ventilation systems, marketed by the Air Liquide subsidiary Taema, have been very successful with resuscitation services in hospitals in India. Taema offers respiratory assistance systems worldwide for emergencies, anesthesia and resuscitation, along with systems for the distribution of medical gases and homecare.



### Traceability of trucks, Indonesia

In order to maintain ongoing contact with truck drivers, and to be in a position to react quickly in the event of an incident or delay, Air Liquide Indonesia has outfitted all its vehicles with a "black box". Key information, such as truck location and speed, is communicated to the logistics center in real time. In cases of breakdown or excessive speed, an alarm is activated. The driver and assistance team can communicate with each other at any time. This new solution, less expensive and more efficient than the previous radio system, improves safety, optimizes delivery routes, and accurately updates customers on delivery schedules.



**North Africa  
and Middle East**

Algeria  
Egypt  
Lebanon  
Morocco  
Qatar  
Tunisia

**West and  
Central Africa**

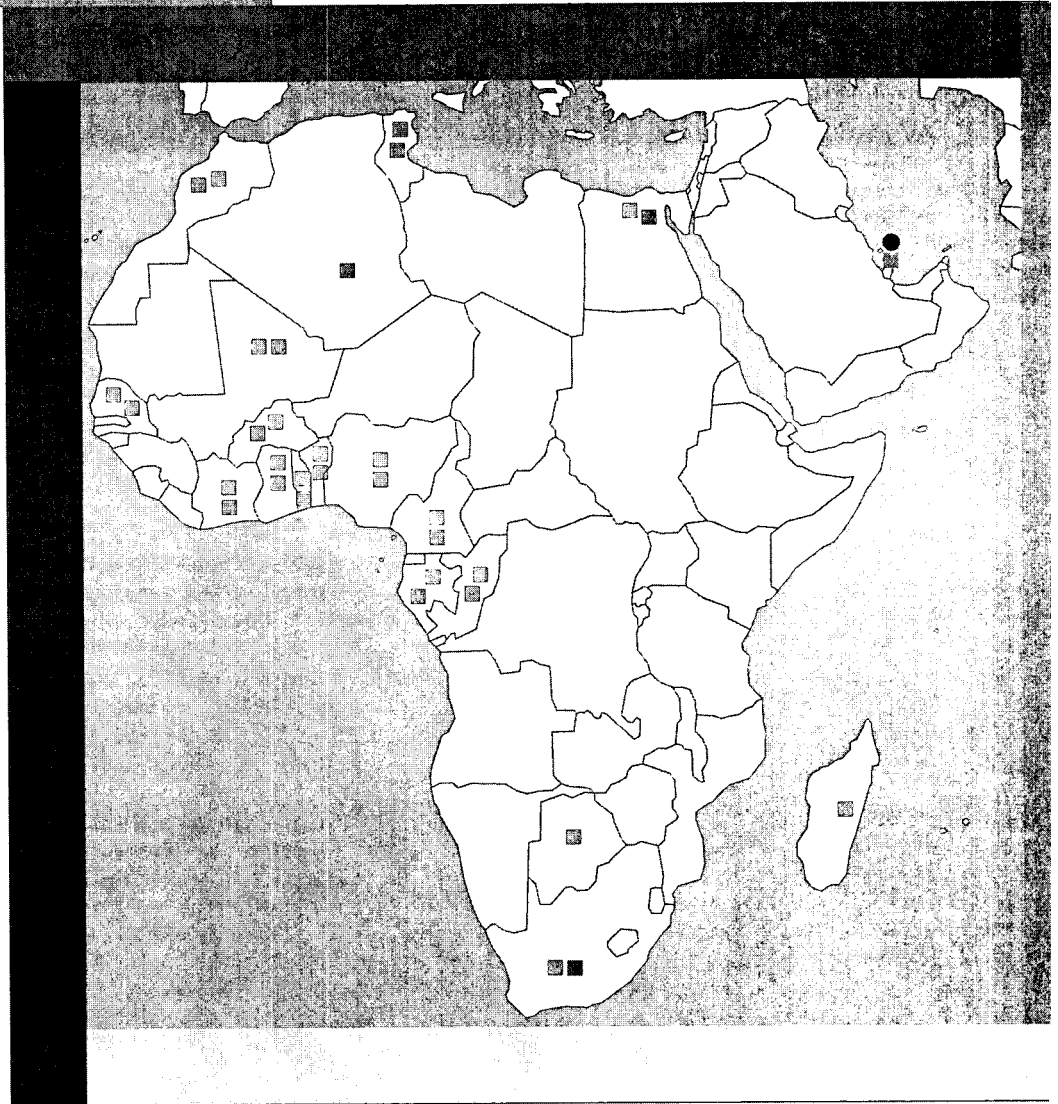
Benin  
Burkina Faso  
Cameroon  
Democratic Republic  
of the Congo  
Ivory Coast  
Gabon - Ghana  
Mali - Nigeria  
Senegal  
Togo

**South and  
East Africa**

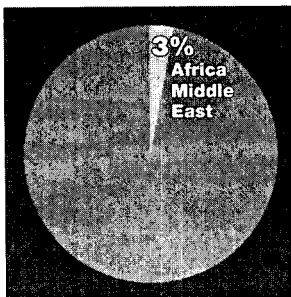
South Africa  
Botswana  
Madagascar  
Reunion Island

**African Nations Cup,  
Tunisia**

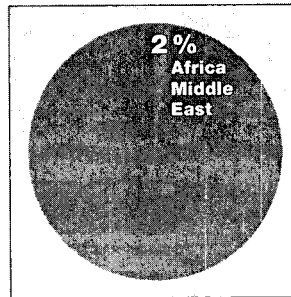
A Carthaginian galleon containing 700 m<sup>3</sup> of helium supplied by Air Liquide, was the star of the show during the soccer African Nations Cup held in Tunis in February, 2004.



**Employees**



**Sales**



- Industrial Customers
- Large Industries
- Electronics
- Healthcare
- Engineering
- ▲ Research Center

# Africa and Middle East, successful integrations

*In 2004, Air Liquide's performance in these two areas was mixed depending on the country, and resulted overall in moderate growth. South Africa and Egypt stand out for their solid performance in terms of both growth and profitability.*

## **Successful business integration in Egypt and South Africa**

Egypt and South Africa, the two African countries in which Air Liquide acquired Messer activities in 2002, are harvesting the rewards of a successful integration. The Group is expanding there with good profitability and gains in efficiency. In Egypt, growth in the steel market is particularly strong. In 2004, Air Liquide supported the expansion of one of its customers, ANSDK, by making investments at the steelmaker's site in order to meet its growing demand for oxygen. In South Africa, the metal fabrication sector is very dynamic, and the Group performed well with regard to products and specialty gases for laser cutting. Air Liquide is also making progress there in the wine-making and healthcare sectors.

## **Deploying new solutions in North Africa**

In North African countries, the Group introduced many innovations by mobilizing its network of Mediterranean ALTEC experts. These innovations include the Arcal line of welding gases, the new Smartop and Minitop cylinder taps, and, in healthcare, the analgesic gas Kalinox. In Morocco, Air Liquide set up a unit to produce hydrogen using water electrolysis (HYOS) at an STMicroelectronics site, a first for this large electronics customer.

## **Development of oil and gas-related activities in Central Africa**

Air Liquide benefited from the strong growth in the oil and gas industry around the Gulf of Guinea (Central Africa and Nigeria). It is worth noting that significant resources have recently been found in Equatorial Guinea. Air Liquide supplies the industry from its base in Port-Gentil, Gabon. In 2004, it started up an argon cylinder filling center. In West Africa, the Group recorded increased sales of products and services to the gold mines of Ghana and Mali.

## **First steps in the Gulf countries**

In terms of fossil fuel production and conversion, Group investments usually cluster near known deposits, first and foremost in the Middle East. Sizable projects are being developed, for example, to convert natural gas on site to fuel or methanol, a base product in the chemical industry. Among these processes, the GTL (Gas to Liquid) technology consumes vast amounts of oxygen. Air Liquide recently opened an engineering office in Qatar to monitor these promising developments.

Helium is found in underground deposits, usually combined with natural gas. It must first be separated before being purified and liquefied for transportation. Air Liquide continued construction of a large helium purification and liquefaction unit in Qatar. The Group is planning to purchase nearly half of the helium produced there in order to supply its customers worldwide.

**Erich Caro**  
Chief Executive Officer of  
Air Liquide in South Africa



*By way of an introduction, could you say a few things about South Africa?*

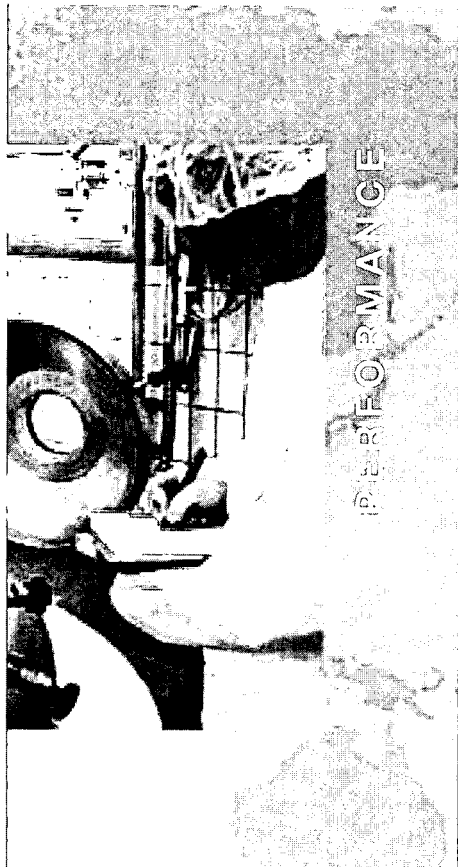
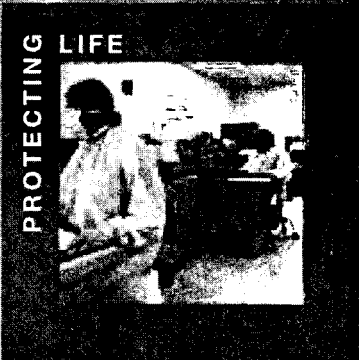
South Africa is going through major changes and Air Liquide plays a part in its transformation, in particular through its commitment to the Black Economy Empowerment (BEE). The Employment Equity Act, which the Group abides by, is just one example of such commitment. This act gives every employee the opportunity to move up within the company, specifically through better access to knowledge and many training programs. We have identified a number of individuals with good potential, and prepared an action plan for their advancement in the Company over the next five years.

*Can you give us an update on the Messer integration in South Africa?*

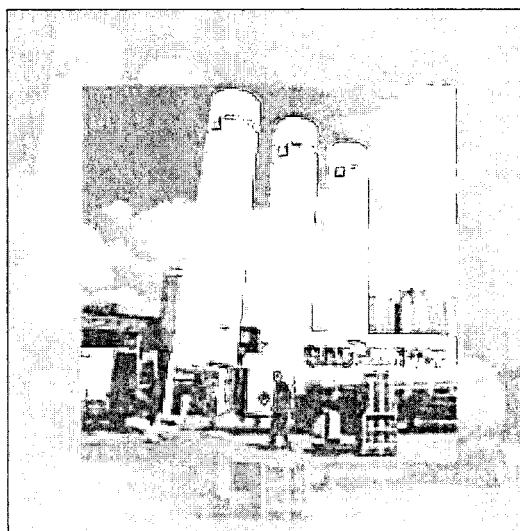
Three years following the acquisition of the Messer activities in South Africa, the outcome is very positive: the organization is running smoothly, teams are motivated, computer systems have been integrated, and industrial and healthcare customers have stayed with us. It has been a successful integration.

*What type of relations do you have with the major South African chemicals manufacturer Sasol?*

For over 25 years, we have enjoyed very close relations with this group, and we have just recently completed construction of its 15<sup>th</sup> oxygen unit. In addition to engineering work, Air Liquide is currently offering on-site services, so that this major customer may focus on its core business activities.



# Management Report



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# Key figures for the Group

The year 2004 marked a return to steadier growth in the Group's key businesses, particularly with rapid development of hydrogen and emerging Asia, and renewed momentum in the markets in the United States, and Healthcare in Europe. This growth was reinforced by the successful acquisition and integration of Messer activities.

In this context, the Group has delivered a further increase in profits for 2004, whilst maintaining margins, thanks to its renewed productivity initiatives.

Furthermore, strong cash flow and a selective approach to investment ensure continued financial strength, with debt levels lower than anticipated and very good return on capital employed.

Overall, 2004 was a milestone year for Air Liquide. In light of this good performance and a favorable outlook, the Management Board is proposing a significant dividend increase.

*In millions of euros*

	2003	2004	2004/03	2004/03 (excl. forex)	2004/03 (excl. forex and excl. Messer)
Total sales	8,394	9,376	+11.7%	+14.5%	+7.1%
<i>of which Gas and Services sales</i>	7,389	8,275	+12.0%	+15.0%	+6.6%
Operating income before depreciation/amortization	2,005	2,191	+9.3%	+12.0%	+6.4%
Operating income	1,196	1,277	+6.8%	+9.2%	+7.1%
Group consolidated net earnings	726	778	+7.1%	+9.6%	+9.4%
Funds from operations (cash flow)	1,542	1,695	+9.9%	+12.6%	
Net earnings per share*** (in euros)	** 6.68	7.20	+7.8%	+10.3%	
Dividend per share (in euros)	** 2.90	3.50	+20.7%		
Return on capital employed after tax (ROCE)	11.6%	11.3%			

\* And excluding natural gas price variation, and impact of consolidation of Asian activities.

\*\* Adjusted to take into account the bonus share issue in June, 2004.

\*\*\* Number of shares outstanding as of December 31, 2004, for net EPS calculation: 107,937,967.

## Sales

**Consolidated sales** for 2004 reached 9,376 million euros, an increase of +11.7% over 2003, including the acquired Messer activities (471 million euros over eight months) for +5.6%.

Excluding foreign exchange, natural gas and the consolidation impact of Messer and subsidiaries in Singapore and Hong Kong, the increase was +7.1%.

## Group results

**Operating income before depreciation and amortization** was 2,191 million euros, an increase of +9.3% and of +12.0% excluding foreign exchange. This result was delivered with margins maintained. Productivity initiatives undertaken with the launch of the OPAL program and pricing action enabled the Group to fully offset increased costs stemming principally from energy and the implementation of new IT systems.

After depreciation and the amortization of the goodwill attributable to the Messer acquisition, operating income amounted to 1,277 million euros, an increase of +9.2%, excluding foreign exchange.

Margins (ratio of operating income to sales) were therefore maintained at 14.1% (excluding natural gas and Messer) compared with 14.2% in 2003.

Following the acquisition of Messer activities, financed entirely by debt, **net financial expenses** stood at 143 million euros versus 106 million euros in 2003. Excluding this acquisition, financial expenses fell significantly (-17%) reflecting lower cost of debt.

The contribution from **companies accounted for by the equity method** was 37 million euros, a decrease of 13 million euros, following the consolidation by the proportional method of SOAEO's subsidiaries in Singapore and Hong Kong in 2004.

**Other expenses** amounted to -68 million euros, compared with -50 million euros in 2003. In particular, these include provisions for restructuring.

Proceeds from divested Messer activities contributed 32 million euros to earnings, including net capital gains from divestments.

The **effective tax rate** decreased to 27.5% from 29.6% in 2003, partly due to ongoing tax optimization efforts, particularly in Europe.

**Minority interests** increased by +14% owing to very good results from Japan Air Gases, which saw the benefits of synergy plans initiated in 2003 achieved a year ahead of schedule.

Overall, **Group consolidated net earnings** was 778 million euros, an increase of +7.1% (+9.6% excluding foreign exchange). As announced, the contribution of Messer activities consolidated since May had a neutral impact on results for the year.

In 2004, the Group bought back 339,743 shares (adjusted for the 2,500 shares issued in June, 2004) amounting to a total of 44.4 million euros, i.e. an average price of 130.60 euros.

### Statement of changes in financial position and balance sheet

**Funds from operations** (cash flow) were 1,695 million euros, an increase of +12.6% excluding foreign exchange. This is in line with operating income growth before depreciation and amortization. In total, funds from operations (cash flow) represent 18% of sales.

**Capital expenditures** amounted to 998 million euros over the year (excluding the Messer acquisition), up compared with 2003 owing to investment decisions for growth made during the past two years. In 2004, the ratio of capital expenditures to sales was 10.6%.

In 2004, the Group's **investment decisions** totaled 1,200 million euros, reflecting numerous commercial successes across all geographic zones and in markets with strong potential.

After increased working capital, share buybacks and conversion impact, **net indebtedness** was 3,790 million euros, representing a decrease of almost 1 billion euros since June, 2004, ahead of the Group's expectations.

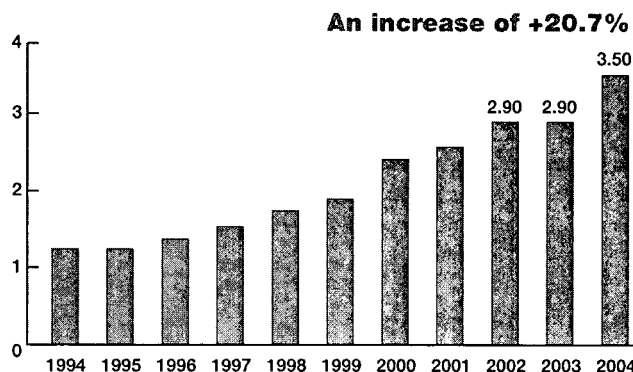
The **ratio of net indebtedness to shareholders' equity** was therefore 66% as of December 31, 2004, a better level than anticipated. Following the Messer acquisition, the Group's financial structure continues to be very strong.

As of December 31, 2004, **return on capital employed after tax (ROCE)** was 11.3% versus 11.6% in 2003. Excluding the acquisition of Messer activities, return on capital employed was 12.2%.

### Dividends

At the General Shareholders' Meeting on May 11, 2005, a **dividend** of 3.50 euros will be proposed to shareholders for fiscal year 2004, amounting to a distribution rate of 50.3% of consolidated net earnings.

**Dividend per share: €3.50\***



(\*) 2004 dividend proposed at the General Shareholders' Meeting. Dividends for previous years are adjusted to take into account bonus share issues.

### Average annual growth over ten years

Dividend per share: +11%

Total shareholder return: +11%

### At year-end 2004

Distribution rate: 50%

Share yield: 2.6%

### Total shareholder return of an investment in Air Liquide shares

Total shareholder return (TSR) is an annualized rate of return for shareholders who purchased a share at the beginning of the period and sold it at the end of the period.

TSR calculation factors in the change in share price and dividends paid (including tax credit), assuming they are reinvested in shares right away.

This return is a percentage equal to the share yield (dividend/share price) added to the capital gains rate (capital gains over the period/initial share price).

For L'Air Liquide S.A., net earnings before exceptional items reached 384 million euros, compared with 328 million euros in 2003.



# Acquisition of Messer activities in Germany, the United Kingdom and the United States

Announced on January 20, 2004, the acquisition of Messer activities in Germany, the United Kingdom and the United States was finalized on December 3, within a short time frame of 11 months, including approvals from the competition authorities and the realized divestments.

This acquisition is consistent with the Group's strategy to strengthen its position in industrial gas activities through both organic and external growth, and through targeted and profitable opportunities.

Current customers of acquired Messer activities in the countries concerned will benefit from Air Liquide's global network and expertise in technological innovation through an enlarged offer of products and services.

This acquisition also allows Air Liquide to strengthen its position in several key markets:

- In **Germany**: the acquired Messer activities give Air Liquide a broader and more solid base. These activities (sales of approximately 455 million euros) benefit from a strong and well-established presence in Germany's industrial basins, particularly in the Ruhr and Rhine areas. Its business is very complementary to Air Liquide's existing activities, which are strong in the eastern and northern parts of Germany. Air Liquide thus gains access to a solid, balanced portfolio of customers in a broad range of sectors.
- In the **United Kingdom**: Messer's focused activities (sales of approximately 70 million euros) make it an important player in the British bulk carbon dioxide market. They complement the Group's existing expertise in the food and beverage industry, one of the key growth sectors for Air Liquide.
- In the **United States**: a major distributor of liquid gas, Messer (sales of approximately 255 million euros) was established mainly in the North and East, an industrial region that accounts for more than 50% of industrial production in the United States. This geographic presence complements Air Liquide's existing activities – located mainly in the western and southern regions of the United States – enabling the new entity to strengthen its position as a national player and broaden its ability to benefit its customers.

## Integration and teams

Beyond the quality of the teams and the acquired assets, Messer's overall expertise is very complementary to the Group's.

The Management teams of the new entity were designated on the basis of their respective skills.

Klaus Schmieder, former Chairman of the Management Board of Messer, has joined the Air Liquide Group as Executive Vice-President and member of the Management Board. He is responsible for overseeing and coordinating Gas and Services operations in Europe, excluding Large Industries and Healthcare.

The operational integration of acquired activities has made significant progress thanks to the work of teams put in place as early as March, 2004.

## Key figures

*In millions of euros*

	Acquired sales*	Sales after required divestments*
Germany	660	455
United States	310	255
United Kingdom	70	70
<b>Total</b>	<b>1,040</b>	<b>780</b>
Initial acquisition amount including acquisition costs		2,736
Final amount after divestments		2,037
Synergies		100

\* On the basis of estimated sales figures for 2003, calculated using 2003 exchange rates, over 12 months.

## **Calendar of the acquisition of Messer activities**

■ **January 20:** proposed acquisition of Messer activities announced

■ **March 15:** the European Commission approves the proposed acquisition subject to divestments

■ **April 29:** the Federal Trade Commission (FTC), the U.S. competition authority, approves the proposed acquisition of Messer, subject to the divestment of some acquired liquid gas units

■ **May 6:** closing of the acquisition

The Group concludes its acquisition following the finalization of financing by the Messer family for the retained businesses.

■ **June 29:** sale of Messer activities to be divested in the United States

The Group signs an agreement with Matheson Tri-Gas, Inc. (a subsidiary of Nippon Sanso) for the sale of liquid gas activities to be divested in the United States in compliance with the Consent Order signed on April 29, 2004, between Air Liquide and the FTC, to meet antitrust requirements. The activities divested represent around 60 million dollars in sales for a sale price of 155 million dollars. Included in the results for 2004, divestments were realized on the basis of a sales multiple approximately equal to the acquisition price multiple.

■ **September 21:** Air Liquide signs an agreement with Tyczka for the sale of carbon dioxide activities to be divested in Germany

Air Liquide signs an agreement with the German company Tyczka, a leading player in the European liquefied petroleum gas (LPG) market. This divestment represents sales of 10 million euros in 2003. The transaction is based on a sales multiple slightly higher than the acquisition price multiple.

■ **October 7:** Air Liquide signs an agreement with Praxair for the sale of Large Industries, bulk and cylinder activities to be divested in Germany

The agreement, pending approval of German competition authorities, amounts to sales of about 180 million euros in 2003.

In total, the combined proceeds in Germany amount to 530 million euros (including the sale of carbon dioxide activities to Tyczka). This was achieved on the basis of a sales multiple higher than the total acquisition price multiple.

■ **November 2:** completion of the divestment of activities to Matheson Tri-Gas, Inc. in the United States with the final approval of the Federal Trade Commission

■ **November 4:** completion of the sale of carbon dioxide activities to be divested in Germany with the final approval of the European Commission

■ **November 24:** Air Liquide signs an agreement to sell its interest in MNS to Taiyo Nippon Sanso

Air Liquide signs an agreement to sell its 51% interest in MNS Nippon Sanso to a newly established subsidiary of Nippon Sanso Corporation.

■ **December 3:** completion of the acquisition of Messer activities

Air Liquide finalizes the acquisition of Messer activities with the final approval from European and German competition authorities for the sale to Praxair of certain activities in Large Industries, bulk and cylinder gas to be divested in Germany.

After the required divestments, the total net investment is 2 billion euros for acquired sales of around 780 million euros, in line with the Group's original estimates.

In addition, on October 29, 2004, Air Liquide announced the sale of its 90% interest in GT&S, an entity specialized in cylinder gases and a Messer subsidiary in the United States. This transaction was undertaken for strategic reasons and is in addition to the divestments required by U.S. competition authorities. The interest in GT&S has been purchased by an entity controlled by the previous minority owner of GT&S, for an amount close to 2003 annual sales, or approximately 80 million dollars.

## Financing of the acquisition

This acquisition, which represented an initial investment of 2.7 billion euros, was financed by external debt. Initially (in May, 2004), the acquisition was financed by issuing commercial paper in euros and by short-term bank debt in US dollars. This debt was entirely secured with confirmed back-up lines of credit negotiated specifically for this transaction. Thus, Air Liquide benefited from low-cost financing without any liquidity risk. This initial financing gave the Group a wide degree of flexibility as it awaited proceeds from the divestment of assets previously agreed to. As a second step, Air Liquide refinanced part of this short-term debt by long-term sources in the bond market and bank financing for a total of 1,420 million euros. At the end of June, 2004, L'Air Liquide S.A. carried out two bond issues under its EMTN program (500 million euros maturing in 2010 and 500 million euros maturing in 2014). L'Air Liquide S.A. also issued a private placement of 130 million euros maturing in 2012, and its subsidiary American Air Liquide issued private placements in the United States for 400 million US dollars (three tranches maturing in 2009, 2011 and 2012).

The divestments in the second half of 2004 reduced the short-term commercial paper outstanding and the bank debt in the United States, by around 700 million euros. In parallel, the long-term lines of credit were reduced at the end of the year in proportion to lower short-term financing following the long-term refinancing and proceeds from divestments. The overall impact of this acquisition on the Group's net indebtedness, after taking into account divestments, acquisition costs and financial charges, is around 2 billion euros, of which 72% are financed by long-term debt, and 28% by commercial paper secured with long-term lines of credit.

Following this acquisition, Air Liquide retains a quality credit rating. In May, 2004, Standard and Poor's, the credit rating agency, gave Air Liquide a long-term rating of "A+/negative outlook" and a short-term rating of "A1". Moody's attributed a short-term rating of "P1".

## Cost of the acquisition debt and hedging of the interest rate risk

A favorable financing environment with low interest rates, as well as its rating, helped Air Liquide to finance the acquisition at a competitive rate of around 3.3% over 2004. In order to maintain this financing rate over the long term, Air Liquide kept a part of the euro long-term financing at fixed rate, and took advantage of the historically low short-term rates (2% in 2004) on the short-term portion of the debt. Anticipating the rise in short-term US dollar rates towards the end of 2004, and which continues in 2005, Air Liquide protected itself by taking medium and long-term hedges on its debt denominated in US dollars.

## Impact on the financial statements

In the 2004 financial statements, Messer activities were consolidated for eight months from May 7, 2004, onwards.

Contribution to consolidated sales from retained activities amounts to 471 million euros.

The impact on the balance sheet includes indebtedness due to the acquisition, re-evaluated net assets and the resulting goodwill.

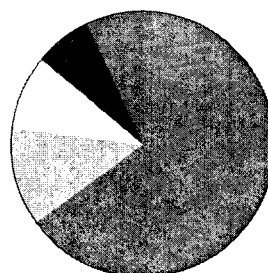
The operation is accretive, before amortization of goodwill from the first year of consolidation.

*In millions of euros*

	Messer's contribution in 2004
Sales	471
Operating income before depreciation/amortization	112
Amortization/depreciation	(86)
<i>including amortization of goodwill</i>	<i>(25)</i>
Operating income	26

## Synergies

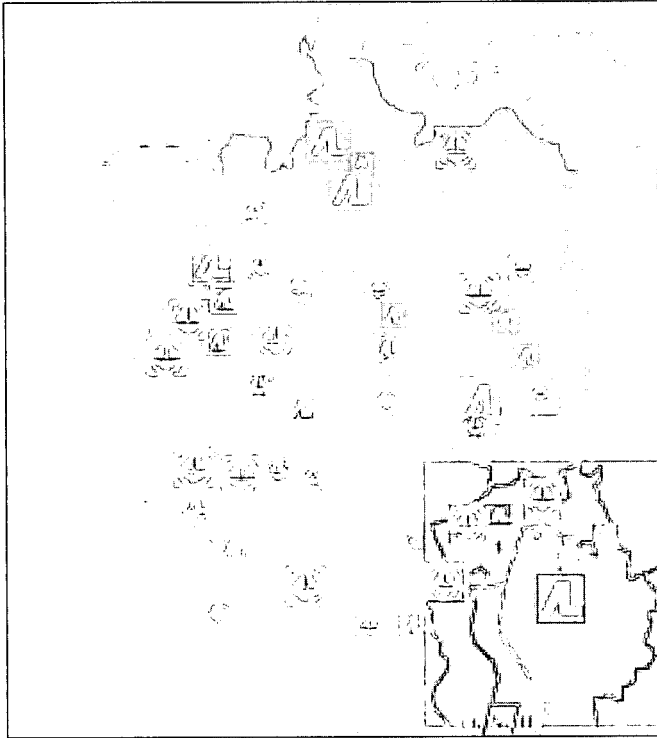
### The distribution of €100 M of synergies



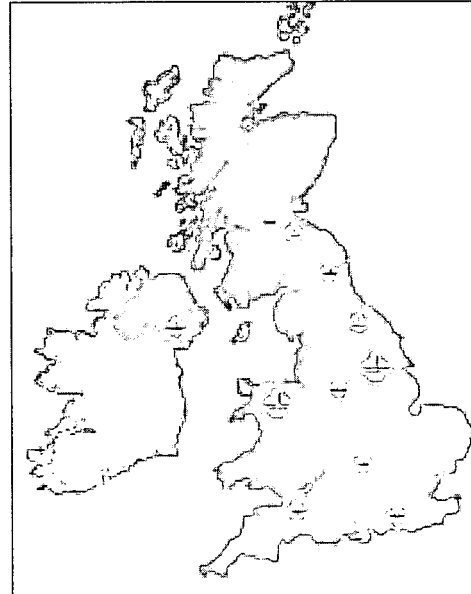
■ General & Administration	□ 65%
▨ Industrial efficiency	□ 12%
□ Logistics	□ 9%
■ Purchasing	□ 7%
■ Volumes	□ 7%

Synergies following the integration of Messer activities will amount to 100 million euros over three years. The Group figures that 50% of synergies will be achieved in 2005.

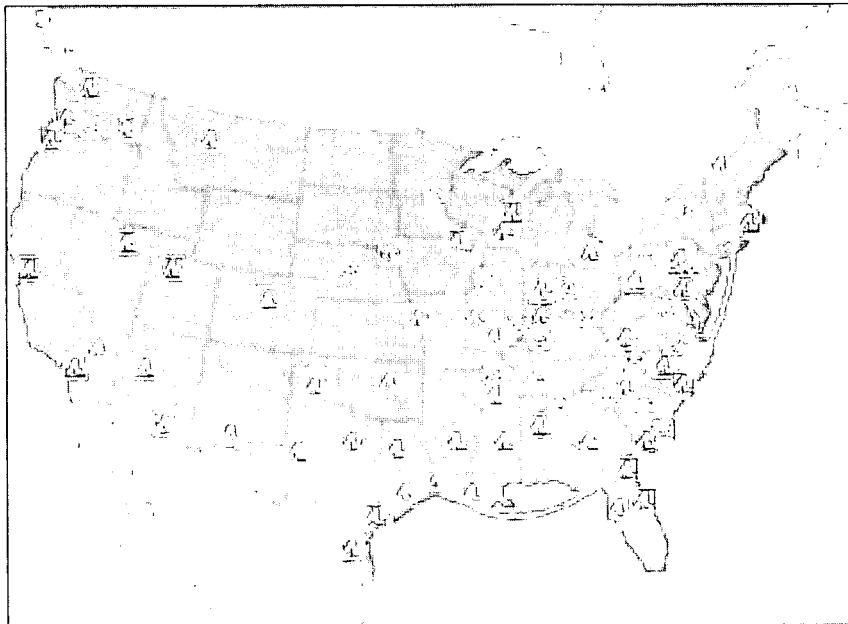
**Germany: n° 2 in the first European economy**  
**Sales in 2004 pro forma for a full year: €900 M**



**United Kingdom: a targeted presence**  
**Sales in 2004 pro forma for a full year: €70 M**



**United States: n° 3 close to the n° 2**  
**Sales in 2004 pro forma for a full year: €1,600 M**



Air Liquide activities



Retained Messer activities

# Activities and investments

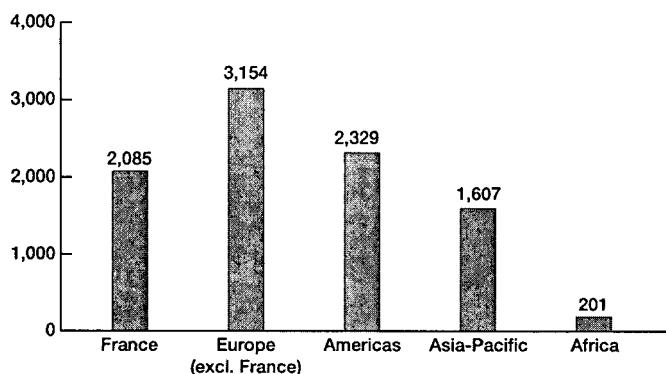
The year 2004 was very significant for Air Liquide, due to the acquisition and successful integration of Messer activities which enhances the Group's core business in Europe and the United States, and the delivery of accelerated growth which confirms the Group's strategy.

As a result, the Group has recorded strong consolidated sales growth for the year. Hydrogen activities have developed strongly and both homecare and service businesses have confirmed their ability to deliver sustainable growth. In 2004, Air Liquide grew in all markets in Europe, the United States, and Asia, and particularly in China, demonstrating the Group's new momentum.

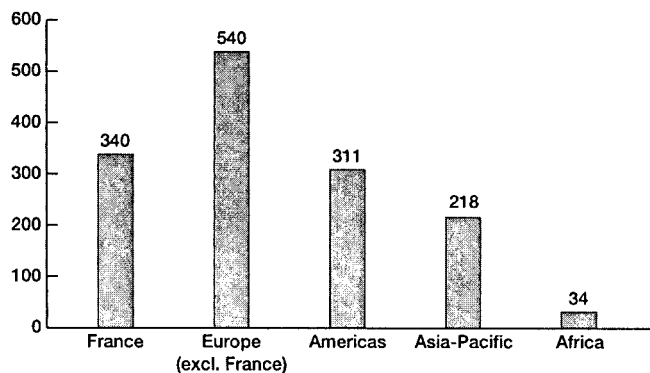
In 2005, these positive trends should continue with the further development of the growth drivers and the Group's geographic expansion.

## Analysis by geographic zone

### Sales by geographic zone (in millions of euros)



### Operating income by geographic zone <sup>(1)</sup> (in millions of euros)



(1) Excluding research centers and corporate overheads (-166 million euros).

## Europe

Air Liquide's activities in Europe achieved significant growth, despite a weaker economic environment. This is the result of the Group's strategy of developing new markets: hydrogen, healthcare and services. The integration of Messer in Germany is progressing favorably, with a new organizational structure fully in place since January 1, 2005.

In Large Industries, hydrogen capacity was tripled, with the start-up of units in France, Spain and Belgium. Products and services in Healthcare are recording sustained growth. Industrial Customers are benefiting from the integration of enlarged offer and services.

The continued ramp-up of large contracts and the Group's developments in its Healthcare businesses ensure good prospects for 2005.

In a moderate economic environment, operating income in Europe (including France) increased. This growth was linked in particular to good results in Northern Europe, in Large Industries and Healthcare.

## Americas

The Americas performed well with high utilization rates of the Group's capacity and new developments sustaining its future performance.

In North America, Industrial Customers registered a significant increase in liquid volumes, benefiting from higher demand due to the favorable economic environment in most markets. Activity in Large Industries was sustained throughout the year and a very large 100,000 m<sup>3</sup>/hour hydrogen unit was started up in the fourth quarter in California, a new basin for Air Liquide. Important contracts won in 2004 in hydrogen and Electronics and the integration of Messer will enable the Group to sustain its momentum in the American continent over the next two years.

Growth in operating income was very sustained, with a significant increase in margins, driven in particular by volumes in the United States and productivity initiatives.

## Asia-Pacific

2004 was a strong year for the Asia-Pacific zone and all businesses are growing. The ramp-up of large contracts, notably in South Korea, and the dynamic semi-conductor market (particularly for flat screens) underpinned this performance. In Japan, activity was stronger at the end of the year thanks notably to Electronics and a better fourth quarter in Industrial Customers. Best performances were seen in other Asian countries, with very significant growth in China and South Korea.

The outlook for the Group's activities in the zone remains very favorable, with the start-up of large contracts and recent investments in Electronics and Large Industries which increased significantly, in line with the Group's strategy.

In Asia-Pacific, operating income recorded very strong growth linked to rising volumes in emerging Asia and the completion of synergies from Japan Air Gases

## Africa

In 2004, Air Liquide recorded a satisfactory growth in sales and higher margins. South Africa and Egypt, recently included within the Group's perimeter, performed best in terms of activities and return.

### Capital intensity

Capital intensity is the amount of capital needed to generate one euro in sales. This capital is either invested into industrial assets (production unit, storage, truck, etc.), or used as working capital to finance the development of the activities.

Capital intensity in the Group's business lines varies:

- air gases production in Large Industries is very capital intensive with a capital intensity between 2 and 3;
- hydrogen or cogeneration services currently have a capital intensity close to 1, given the high price of natural gas in particular;
- Electronics, Healthcare, and value-added services, all major development drivers, also have a capital intensity around or below 1 depending on product mix.

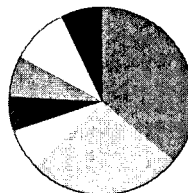
Whatever the capital intensity, Air Liquide's objective is to achieve, over the long term, return on capital employed after tax of at least 12% (ROCE).

## Gas and Services (excluding Messer)

### Industrial Customers

*In millions of euros*

2004 Sales	3,834
Capital intensity	1.5 to 2



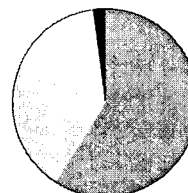
■ Liquid gasses	36%
■ Cylinder gases	27%
□ On-site	7%
■ Services	6%
■ Pure and mixed gases	7%
□ Equipment and installations	10%
■ Other	7%

### Large Industries

*In millions of euros*

2004 Sales	2,261
Capital intensity*	1.5 to 2.5

(\*) At 2004 average natural gas price.

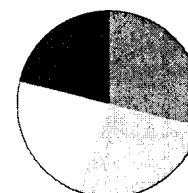


■ Air gases	59%
□ H <sub>2</sub> /CO	22%
□ Cogeneration	17%
■ Other	2%

### Electronics

*In millions of euros*

2004 Sales	884
Capital intensity	1 to 1.2

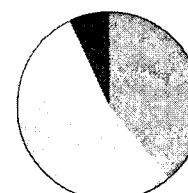


■ Carrier gases	29%
□ Specialty gases	27%
□ Services and liquid chemicals	23%
■ Equipment and installations	21%

### Healthcare

*In millions of euros*

2004 Sales	1,296
Capital intensity	0.8 to 1.2



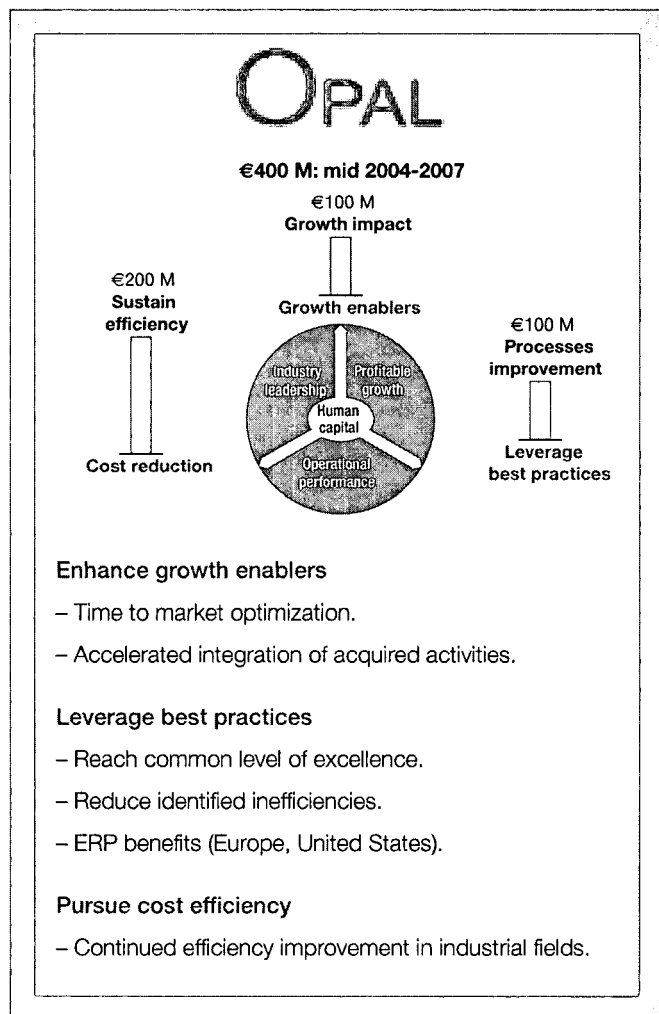
■ Homecare	39%
□ Hospital	38%
□ Hygiene	16%
■ Equipment	7%

## New productivity program

In 2004, Air Liquide launched a three-year action plan to strengthen sales growth and improve operating income.

The program is based on three key goals: accelerating time to market for the Group's products and services, leveraging best practices, and constantly improving efficiency.

This program should generate approximately 400 million euros in improved performance throughout all Group activities by 2007.



## Competition

Air Liquide's main competitors in industrial and medical gases are the American groups Praxair and Air Products, the British group BOC, the German group Linde and two smaller groups: Taiyo Nissan (Japan) and Airgas (United States).

In December, 2004, Air Liquide completed the acquisition of the Messer activities in Germany, the United Kingdom, and the United States with the approval of competition authorities in Europe and the United States.

Before and after this acquisition, Air Liquide is the world leader in industrial and medical gases.

## Delivering growth strategy

The Group's strategy is firmly focused on growth:

■ Air Liquide's strategy in the industrial gas sector is **unique** as it combines **balance of activities, geographic presence, and resource mix**. This strategy leads to targeted investments equal to 11% to 13% of sales;

■ Earnings each year result from the combination of **growth in sales and continuous gains in productivity** within the Group;

■ **Financial discipline** is driven by **ambitious goals**: the return on capital employed after tax (ROCE) should in permanence attain or exceed 12%; the ratio of net indebtedness to shareholders' equity remains between 35% to 50%;

■ **Delivering sustained, long-term shareholder returns is a priority**. The total shareholder return (TSR) rate in the last ten years has been over 11%.

## 2005 Outlook

Following 2004, which marked an important stage in Air Liquide's development, the Group's financial strength is maintained and 2005 has begun in a positive trend, due to:

■ Focus on **profitable growth in emerging economies**;

■ **Development** of the Group's key **growth drivers**: hydrogen, Asia, Electronics, homecare and hygiene in Europe;

■ Integration of Messer activities within a **new European framework**;

■ Achievement of **50% of anticipated Messer synergies** in 2005.

Air Liquide's business successes over the past three years and dynamic growth drivers position the Group to target, once again, a growth rate in net earnings in 2005 at least comparable to that published in 2004.

## Investments decisions and capital expenditures

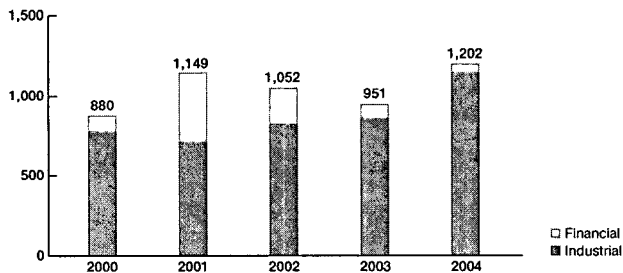
Investment decisions have always been a key element of the Group's strategy as they:

- develop the business through both internal and external growth,
- improve efficiency and quality, and
- ensure safety and reliability.

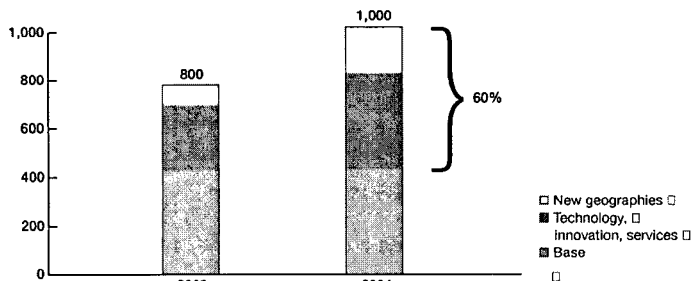
The economic objective of these investments is to facilitate sustainable growth by improving the returns on capital employed. The required level of the internal profitability may vary with the overall assessment of the risks associated with the investment. Investments in long-term contracts, for instance, generate weaker levels of profitability in the first few years, because the customer's needs increase gradually, while the contract bears the depreciation (linear over the life of the contract) and financial expenses over the same period. Profitability levels increase rapidly thereafter.

The Group's decision to enlarge its offer resulted in a number of commercial successes between 1995 and 1997, which in turn led to accelerated investment decisions. During this period, the Group committed approximately 3.5 billion euros to industrial investments, two-thirds of which were linked to long-term contracts. This was three times the investments made between 1992 and 1994. These decisions resulted in 68 large units between 1997 and 2000 and generated significant capital expenditures until 1999. Following this development period, Air Liquide has continued, over the past four years, to invest at a rate of approximately 1 billion euros a year. Today, the Group has over 250 units on the five continents.

### Investment decisions (in millions of euros) (excluding Messer)



### Gas & Services investment decisions (excluding Messer) (in millions of euros)



In 2004, investment decisions amounted to 1,202 million euros (excluding the acquisition of Messer's activities in Germany, the United Kingdom and the United States), a +15% increase over the average of the last three years. This increase resulted from new contracts secured during the year. Emerging geographies accounted for 200 million euros of the Group's total investment decisions, while growth markets, such as hydrogen, energy, Electronics and Healthcare accounted for 400 million euros. These strategic development drivers accounted for 60% of the Group's industrial investments.

Three significant successes were achieved in China where the Group will supply air gases on a long-term basis to two major steel makers in the Shandong area, as well as to a flat screen producer based in Beijing. In hydrogen, Air Liquide secured a major contract in Bayport, Texas, and therefore strengthened its position at the heart of Houston's refinery basin.

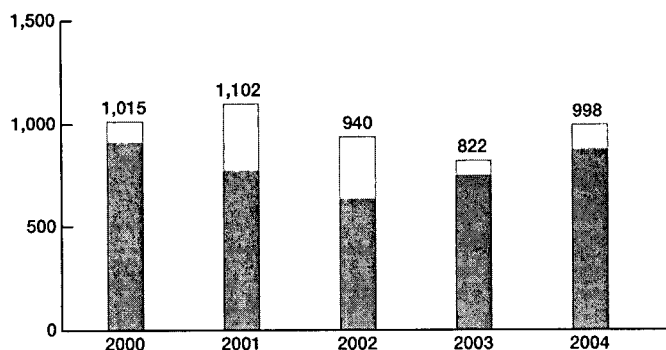
These investment decisions are subject to a careful evaluation process, undertaken at Group level by the Investment and Operations Committee chaired by a member of the Management Board together with directors of relevant zones and activities.

Decisions are based on rigorous individual assessments of projects, using five main criteria:

- **The location of the contract:** the analysis will differ whether the project is based in an industrial basin with high potential (Corpus Christi in the United States, Antwerp in Belgium, Caojing in China), or connected to an existing pipeline network, or else found in an isolated location;
- **The nature of the product provided:** the analysis of risks and expected profitability will vary in the case of air gases, relying on the Group's traditional technologies, or new products such as hydrogen and synthetic gas, which occasionally rely on more innovative technologies;
- **Customer risk:** this is measured according to whether the customer is local or global, and takes into account the customer's market and stability;
- **Competitiveness of the site or gas-dependent activity:** this is assessed based on size, the cost of raw materials and access to markets;
- Finally, **country risk** is studied carefully.



**Capital expenditures (in millions of euros)  
(excluding Messer)**



□ Financial  
■ Industrial

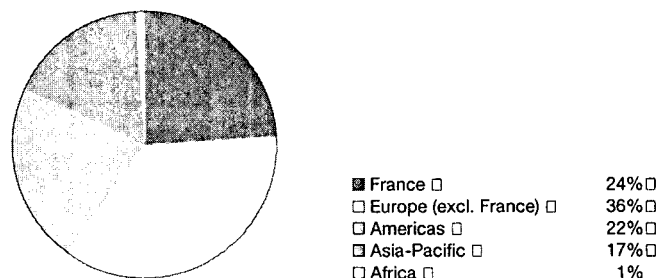
In 2004, **industrial capital expenditures** reached 875 million euros compared with 747 million euros in 2003. This increase reflects the ramp-up in investment decisions between 2002 and 2004 in Air Liquide's growth markets (notably hydrogen and emerging Asia). By geographic zones, Europe excluding France accounted for 39% of these investments, France 22%, the Americas 21%, Asia 17% and Africa 1%.

**Financial capital expenditures** totaled 2,859 million euros including the acquisition of the Messer activities in three countries during the year. Excluding this acquisition, expenditures amounted to 123 million euros compared with 75 million euros in 2003. For the most part, these expenditures were linked to the buyback of minority interests in the United States and in Asia, as well as the acquisition of Livingston, a major player in the field of metrology, which has strengthened the services pole in Europe.

In total, the ratio of capital expenditures (excluding the financial investment tied to the Messer acquisition) to Group total sales was 10.6% in 2004 compared with 9.8% in 2003.

In 1999, with the gradual increase in sales generated through large projects and the Group's policy of selective investments, the Group's return on capital employed (ROCE) has increased notably. In 2004, return on capital employed after tax was 12.2% (excluding Messer) compared with 11.6% in 2003. Including the acquisition of Messer, return on capital employed was 11.3%, a good performance given the size of this strategic transaction.

**Capital expenditures by geographic zone  
(excluding Messer)**



**The lifespan of a long-term contract**

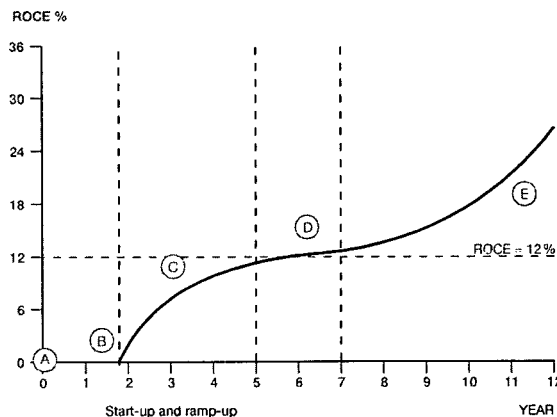
Stage A: an investment decision follows the signing of a long-term contract.

Stage B: capital expenditures begin as Air Liquide builds the unit for the customer(s) over 18-24 months.

Stage C: the unit starts up and gas production increases progressively. Sales begin and will continue over the course of the contract term.

Stage D: between years five and seven, the contract reaches an average return on capital employed (ROCE) of 12%, in line with Group objectives.

Stage E: after 15 years, aside from maintenance expenses and renewed investment, the unit is mostly depreciated. At this point, the return on capital employed grows significantly.



# Financial policy

## Financial risk management

Risk management is a priority for the Group. As for financial risk management, Air Liquide has set up a Finance Committee that includes members of the Management Board, the Finance Director, and representatives from the Finance Department. The Committee's role is to establish financial, treasury and financing risk policies and monitor their implementation. The Finance Committee reports to the Audit and Accounts Committee of the Supervisory Board.

The Finance Department manages the main financial risks centrally, based on the decisions of the Finance Committee, to which it reports quarterly. The Finance Department also performs the analysis of country and customer risks and provides input on these risks at Investment and Operations Committee meetings.

## Foreign exchange risk

In the industrial gas industry, most products are not exported but are produced in the country where they are invoiced. There is thus little risk of currency fluctuations affecting the Group's competitiveness. Foreign currency variations only affect operating income when financial statements are translated into euros. The effect of the two main foreign currencies – US dollars (USD) and yen (JPY) – is as follows:

### Impact of variation of +/- 1% in foreign exchange rate:

*In millions of euros*

	Sales	% Group	Operating income	% Group
USD	19.7	0.21	2.3	0.18
JPY	9.7	0.10	1.0	0.08

The geographic distribution of operating income by currency is as follows:

	2003	2004
Euro zone	54%	51%
US and Canadian dollar zones	23%	24%
Yen zone	8%	8%
Other	15%	17%

Transactions involving patent royalties, technical support and dividends require the exchange of foreign currency between Group companies. The related exchange risk is handled as part of the Finance Department's hedging policy.

In Engineering and Construction, the Group hedges transactions on a case-by-case basis. The instruments used are mainly currency forwards or options with first-grade counterparties. The breakdown of the hedging portfolio by currency and instrument is shown on page 96.

The Group raises debt in the currency of the cash flows. This provides a natural hedge and reduces the Group's exposure to exchange rate variations. In countries outside the euro, US dollar and yen zones, financing is raised in either local or foreign currency (EUR or USD) when contracts are indexed in euros or US dollars – which is often the case for Large Industries projects.

As part of intra-group multi-currency financing, the Central Treasury Department converts the debt raised in financial markets into various currencies to refinance subsidiaries in their functional currencies. The breakdown of this hedging portfolio is shown on page 96.

The following table shows the impact of foreign exchange swaps on Group net indebtedness as of December 31, 2004:

*In millions of euros*

	Gross debt before hedging	Short-term loans, marke- table securities and cash	Hedging (foreign exchange swap contracts)	Net indeb- tedness adjusted after hedging	Fixed assets
EUR	3,671	(544)	(409)	<b>2,718</b>	5,657
USD	522	(64)	300	<b>758</b>	2,098
JPY	177	(12)	58	<b>223</b>	548
CAD (1)	8	(9)	96	<b>95</b>	380
Other currencies	197	(156)	(45)	(4)	1,552
<b>Total</b>	<b>4,575</b>	<b>(785)</b>	<b>0</b>	<b>3,790</b>	<b>10,235</b>

(1) Canadian dollar.

A portion of the euro debt raised on the markets (409 million euros) was converted to other currencies to refinance foreign subsidiaries. For instance, of the Group's US dollar gross debt of 822 million (758 million of net indebtedness plus 64 million of excess cash), 522 million euros were raised directly in US dollars and 300 million euros were raised in euros and converted to US dollars using foreign exchange swap contracts.

## Interest rate risk

### Principles

Air Liquide interest rate risk management on its main currencies - euro, US dollar, Canadian dollar and yen - is centralized. These currencies represent approximately 97% of total gross debt. For other currencies, the Finance Department advises the subsidiaries on hedging their foreign currency exposure in accordance with the local financial market regulations. The Finance Committee determines the fixed rate/floating rate ratio for each currency and approves the hedging instruments used.

The Group's objective is to reduce the impact of interest rate fluctuations on its financial expenses and earnings and, by adopting a principle of prudence, to provide backing for long-term fixed assets with shareholders' equity and fixed-rate long-term debt. Since most of Air Liquide's activities are based on long-term contracts (10 to 15 years), a policy promoting interest rate hedging (fixed rates and options) provides good visibility on the financing cost when deciding long-term investments.

### Sensitivity to interest rate fluctuations

The Group's net indebtedness exposed to interest rate fluctuations amounted to 1,650 million euros as of December 31, 2004 (39% of the gross debt adjusted for short-term securities), compared with 870 million euros at year-end 2003 (41% of the debt).

The increase in the amount of net indebtedness exposed to interest rate fluctuations is due to the acquisition of Messer activities in Germany, the United Kingdom and the United States. Given the Group's policy to hedge interest rate risks, the proportion of the debt exposed to rate interest fluctuations is stable at around 40%.

An increase or decrease in interest rates of 100 bp (+ or -1%) on all yield curves would have an impact of about + or -16.5 million euros on the Group's annual financial charges before tax, assuming outstanding debt remains constant.

Also, the Group contracted optional interest rate hedges (caps), triggered if interest rates increase significantly (above 3.90% for EUR and 3.80% for USD). If those hedges are triggered, assuming constant outstanding debt, consolidated net indebtedness exposed to interest rate fluctuations would drop by about 1,000 million euros to 650 million euros. Sensitivity of financial charges would then be reduced to 6.5 million euros.

The Group does not hold derivatives for trading purposes. All hedging instruments used to manage interest rate or foreign exchange risk relate to identified risks.

## Counterparty risk

Potential counterparty risks for Air Liquide include:

- Customers;
- Bank counterparties.

The Group has more than one million customers in a broad range of industries, dispersed over an extensive geographic area, thus precluding any concentration of customer credit risk. As an illustration, the sales to Air Liquide's top ten customers represent less than 15% of total sales.

To better assess its exposure, the Group has adopted procedures to regularly monitor the financial position of its major customers and analyze outstanding balances.

Moreover, customer risk assessment is an important component in the investment decision process, and the Audit and Accounts Committee is regularly updated on this subject.

Bank counterparty risk relates to the outstanding amounts of derivatives and to outstanding lines of credit contracted with each bank. Based on its financial policy, the Group requires a long-term Standard & Poor's "A" rating or a Moody's "A2" rating from its counterparties. The Group's lines of credit are also spread among several banks to avoid risk of concentration. The Finance Committee regularly checks and approves the list of financial instruments and banks.

## Funding

### Funding policy

All funding decisions are subject to the Group's financial policy, which is implemented and supervised by the Finance Department.

The Finance Committee determines the annual and multi-year goals of the funding policy for all subsidiaries and monitors its application.

To better identify its funding activities, Air Liquide has established a French subsidiary, Air Liquide Finance, that manages most of the Group's interest rate and foreign exchange risks, and funding transactions.

Air Liquide has access to various financing sources in many markets and can therefore optimize financial expenses by choosing the financing best suited to its needs while focusing on liquidity. Air Liquide relies on short-term commercial paper, in France through a French Commercial Paper program to a maximum of 3 billion euros, and in the United States through a US Commercial Paper program (USCP) to a maximum of 1.5 billion US dollars. In line with the Group's internal policy, outstanding commercial paper issuances are backed up with confirmed lines of credit.

In addition, Air Liquide can issue bonds through its long-term Euro Medium Term Note (EMTN) program to a maximum of 3 billion euros. Outstanding notes under the EMTN program amount to 1.8 billion euros, of which 1 billion euros were issued in 2004 to finance the Messer acquisition. In addition, the Group raises bank debt (loans and bilateral lines of credit) and private placements. The average maturity of debt is five years.

### Breakdown of debt

As per the Group's policy of diversifying sources of financing, the debt is spread over several types of instruments (capital and bank debt markets). The first source of financing is long-term bonds under the EMTN format, which represents 40% of the debt.

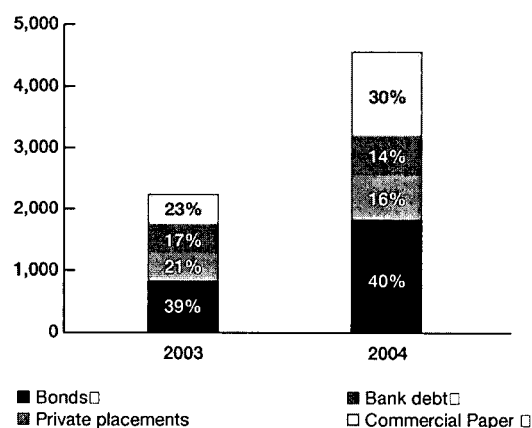
In 2004, the main long-term financing transactions involved the acquisition of Messer activities:

- 1 billion euros in EMTN on the Eurobond market (in two tranches of 500 million euros maturing in 2010 and 2014);
- 400 million US dollars in private placements issued by American Air Liquide, a fully-owned subsidiary of the Group (three tranches maturing in 2009, 2011 and 2012);
- 130 million euros in private placement maturing in 2012.

In addition, the Japanese subsidiary JAG contracted a five-year credit line of 20 billion JPY (about 140 million euros).

### Gross debt distribution by instrument type

(in millions of euros)



In millions of euros

Net indebtedness	Currency of issue	12/31/03	12/31/04
<b>Total bonds</b>		<b>838</b>	<b>1,839</b>
Bonds 2005-2009	EUR	38	39
EMTN at 5% - 2007	EUR	200	200
EMTN at 4.125% - 2010	EUR	0	500
EMTN at 5.25% - 2011	EUR	300	300
EMTN at 4.125% - 2013	EUR	300	300
EMTN at 4.75% - 2014	EUR	0	500
<b>Total private placements</b>		<b>453</b>	<b>746</b>
Private placements - 2008	EUR	50	50
Private placements - 2009	EUR	120	120
Private placements - 2012	EUR	0	130
Private placements - 2004	USD	103	0
Private placements - 2007	USD	135	135
Private placements - 2009	USD	0	147
Private placements - 2011	USD	0	73
Private placements - 2012	USD	0	73
Other private placements	USD	45	18
<b>Commercial paper programs</b>		<b>488</b>	<b>1,379</b>
<b>Bank debt</b>		<b>389</b>	<b>611</b>
<b>Total gross debt</b>		<b>2,168</b>	<b>4,575</b>
Short-term loans, marketable securities and cash		(438)	(785)
<b>Total net indebtedness</b>		<b>1,730</b>	<b>3,790</b>

As indicated in Note (D) to the consolidated financial statements, total debt accounted pro rata of the equity interest held by Air Liquide in companies consolidated by the equity method as of December 31, 2004, and related to the normal course of the business is 17 million euros - including 8 million euros of non-recourse project financing debt. Furthermore, the non-recourse factoring of receivables represents 74 million euros. These elements do not constitute risk or financial liabilities for the Group.

Following the acquisition of Messer activities, Air Liquide retains a strong credit rating. In May, 2004, Standard and Poor's, the credit rating agency, gave a long-term rating of "A+/negative outlook" and a short-term rating of "A1". Moody's attributed a short-term rating of "P1".

## Net indebtedness by currency

Air Liquide's debt is mainly in EUR and USD (approximately 92%). In 2004, the portion of EUR debt increased, from 56% to 72%, due mainly to the financing of the acquisition Messer activities. The outstanding USD and JPY debt increased in absolute value, but to a lesser extent. The increase in USD debt is due to the financing of Messer activities in the United States and to debt not previously consolidated. The increase in JPY debt is due to the financing of an exceptional dividend from the JAG subsidiary.

In millions of euros

	2003		2004	
	Stock	%	Stock	%
EUR	980	56%	2,718	72%
USD	531	31%	758	20%
JPY	133	8%	223	6%
CAD	84	5%	95	2%
Other	2	0%	(4)	0%
<b>Total</b>	<b>1,730</b>	<b>100%</b>	<b>3,790</b>	<b>100%</b>

## Variation of net indebtedness

As of December 31, 2004, net indebtedness was 3,790 million euros (1,730 million euros in 2003), an increase of 2,060 million euros due mainly to exceptional items: the impact of the Messer activities (1,988 million euros), the end of the securitization program in the United States and in Canada partially offset by the increase of other programs (net amount of 91 million euros), and the change in the consolidation perimeter (63 million euros). The impact of changes in currency on net indebtedness, slightly positive at 57 million euros, is due to a nearly 8% drop in the value of the US dollar.

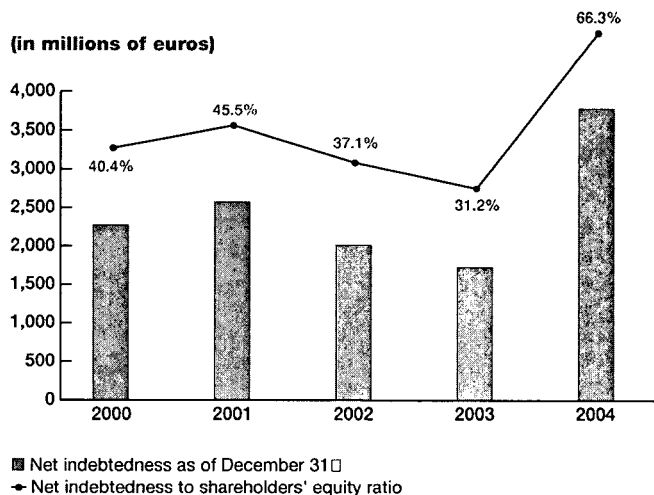
In millions of euros

Net indebtedness as of 12/31/2003		1,730
Funds from operations after investments, change in working capital and others		(533)
Distribution of dividends		489
Foreign exchange impact		(57)
Purchase of treasury shares (net of capital increase)		31
Impact of Messer		1,988
Change in the consolidation perimeter and securitization program		166
<b>Net indebtedness as of 12/31/2004</b>		<b>3,790</b>

For details on the Statement of changes in financial position, see page 120.

## Debt ratio

The net indebtedness to shareholders' equity ratio was 66.3% in 2004 (excluding the acquisition of Messer activities, this ratio would have been 31.4%), compared with 31.2% in 2003. The equivalent debt ratio calculated using the U.S. method: net indebtedness/(net indebtedness + shareholders' equity) reached 39.9% in 2004, compared with 23.8% in 2003.



The financial expenses coverage ratio (operating income before amortization of goodwill + share in the results of companies accounted for by the equity method)/net financial expenses reached 9.6 in 2004, compared with 12.1 in 2003. This change results from the increase in interest expenses due to the acquisition of Messer activities.

## Proportion of fixed-rate debt

As of December 31, 2004, fixed-rate debt represented 61% of total Group debt adjusted for outstanding short-term investments. Including all optional hedges, the portion of hedged debt (fixed rate + optional hedges) was 84%, as follows:

		12/31/2003	12/31/2004
EUR debt	Portion of fixed-rate debt	49%	55%
	Additional optional hedges	31%	33%
USD debt	Portion of fixed-rate debt	65%	88%
	Additional optional hedges	7%	4%
JPY debt	Portion of fixed-rate debt	85%	60%
	Additional optional hedges	0%	0%
Total debt	Portion of fixed-rate debt	59%	61%
	Additional optional hedges	18%	23%

In 2004, given the Group's hedging policy on interest rate risks, outstanding fixed-rate debt was kept at around 60%. The fixed-rate portion of the USD debt increased, in the context of rising USD interest rates. Conversely, the fixed-rate portion of JPY debt decreased, to benefit from lower rates on this currency.

## Long-term debt

As of December 31, 2004, medium and long-term debt accounted for 94% of the Group's gross debt. The maturity schedule for the Group's medium and long-term debt is shown in Note (I) to the consolidated financial statements.

### Gross debt maturities by financial instrument

In millions of euros

	Total	Bonds	Private placements	Bank Debt (1)
2005	274	23	18	233
2006	103	3	0	100
2007	759	204	135	420
2008	126	5	50	71
2009	1,415	4	267	1,144
2010	511	500	0	11
2011	380	300	73	7
2012	205	0	203	2
2013	301	300	0	1
2014	501	500	0	1
Later maturity	0	0	0	0
<b>Total gross debt</b>	<b>4,575</b>	<b>1,839</b>	<b>746</b>	<b>1,990</b>

(1) Including commercial paper outstanding backed with confirmed lines of credit. The maturing date for commercial paper outstanding coincides with that of confirmed lines of credit.

## Cost of debt

In millions of euros

	2003			2004		
	Average outstanding debt	Gross interest (1)	Cost of debt	Average outstanding debt	Gross interest (1)	Cost of debt
EUR	1,243	59	4.7%	2,697	102	3.8%
USD	672	37	5.5%	887	38	4.3%
JPY	249	3	1.2%	226	3	1.4%
Other currencies	257	14	5.4%	242	13	5.4%
Other charges (2)		3			4	
<b>Total</b>	<b>2,421</b>	<b>116</b>	<b>4.8%</b>	<b>4,052</b>	<b>161</b>	<b>4.0%</b>

(1) Interest on gross debt before financial income.

(2) Other charges excluded from cost of debt by currency.

Cost of debt is calculated by dividing interest charges for the fiscal year (excluding bank charges not directly related to debt) by the year's average total outstanding debt. The latter is calculated on the basis of a monthly average.

Cost of debt in 2004 was 4% (4.8% in 2003). This decrease is due mainly to the impact of the average rate of Messer's additional debt (about 3.3%, see page 84) on the average rate of the consolidated debt, as well as to the drop in euro short-term variable rates.

The Group's policy is to spread over time the maturity of long-term debt (bonds and private placements) in order to avoid concentration of annual refinancing needs. Given the regularity of funds from operations generated each year (1,695 million euros in 2004) and the variety of financial instruments used, refinancing of debt does not represent a liquidity risk for the Group.

The 2009 due date for bank debt is mainly attributable to maturing confirmed lines of credit designed to preserve short-term liquidity for financing purposes. The Group's policy is to renew confirmed long-term lines of credit at least one year before maturity.

## Debt liquidity

As of December 31, 2004, the Group had 2,255 million euros in committed lines of credit agreements (compared with 1,663 million euros in 2003). These back-up lines are confirmed by banks and do not contain default clauses linked to financial ratios or rating levels, nor "Material Adverse Change" clauses. The outstanding amount of French CP and USCP was 1,379 million euros as of December 31, 2004 (488 million euros in 2003). According to Group policy, the outstanding amounts of commercial paper programs must be backed-up with committed lines of credit. In 2004, this policy was followed throughout the year, and committed lines of credit have consistently been higher than commercial paper outstandings.

## 2005 Outlook

The year 2004 was marked by the acquisition of Messer activities which constitutes a major strategic step forward for the Group. The overall impact of this transaction on the Group's net indebtedness is about 2 billion euros, after divestments, acquisition costs and financial charges. At year-end 2004, with a net indebtedness of 3,790 million euros, Air Liquide's net indebtedness to shareholders' equity ratio was 66.3%, lower than the Group's objective (70%) when the acquisition was announced. Air Liquide is demonstrating again its capacity to generate strong cash flow, based on long-term contracts in particular, and to pay off its debt. Air Liquide will retain its policy of selecting and managing capital expenditures, and will pursue debt reduction steadily, while maintaining dividend policy to shareholders. In the medium term, Air Liquide plans to achieve a net indebtedness to shareholders' equity ratio in line with the Group's traditional levels, that is between 35% and 50%.

This acquisition was carried out according to the Group's financial policy. Air Liquide will continue to favor liquidity as well as prudent management of financial risks, in particular through long-term interest rate hedging to avoid fluctuations in financial expenses.

### Details of financial instruments

#### Details of financial instruments for hedging foreign exchange risk

The following table shows the breakdown by currency, as of December 31, 2004, of the nominal value of financial instruments for hedging foreign exchange relating to royalties and dividends and to refinancing of subsidiaries:

#### Instruments relating to royalties and dividends

*In millions of euros*

Type of instrument	Maturity 2005	After 2005
<b>Forward sales contracts</b>		
USD	142	0
CAD	15	0
AUD (Australian dollar)	12	2
CHF (Swiss franc)	9	0
JPY	6	0
Other currencies	20	0

#### Instruments relating to inter-company financing

*In millions of euros*

	Maturity 2005	After 2005
<b>Foreign exchange swaps borrowing from banks</b>		
USD	307	0
CAD	96	0
JPY	22	0
GBP (British pound)	12	0
<b>Foreign exchange swaps lending to banks</b>		
USD	(7)	0
CHF	(23)	0
GBP	(13)	0
DKK (Danish krone)	(11)	0
SEK (Swedish krona)	(10)	0
<b>Currency swap (with exchange from variable rate to medium-term fixed rate)</b>		
JPY		36

The notional amounts in foreign currencies are converted to euros based on the year-end exchange rate.

They represent the notional value of the financial instruments.

The difference between the market value and historical cost of the instruments used to hedge the foreign exchange risks described above is positive by 22 million euros.

## Details of financial instruments for hedging interest rate risk

The financial instruments for hedging interest rates outstanding as of December 31, 2004, are shown by maturity. They are not speculative and come under the hedging policy described above.

*In millions of euros*

Type of instrument	Total	2005	2006	2007	2008	2009	≥ 2010
<b>Interest rate swaps: paying fixed, receiving floating rate</b>							
Objective: to exchange variable rates against fixed rates to guarantee future fixed rates							
EUR	1,530	550	150	200	200	300	130
USD	360	154		73	59		73
JPY	97			29		39	29
CAD	43		43				

*In millions of euros*

Type of instrument	Total	2005	2006	2007	2008	2009	≥ 2010
<b>Interest rate swaps: paying floating, receiving fixed</b>							
Objective: to exchange fixed rates against variable rates							
EUR	1,470			200	50		1,220
USD	73						73

*In millions of euros*

Type of instrument	Total	2005	2006	2007	2008	2009	≥ 2010
<b>Options: caps</b>							
Objective: to put a cap on interest rates							
EUR	875	100			275	200	300
USD	37				37		

*In millions of euros*

Type of instrument	Total	2005	2006	2007	2008	2009	≥ 2010
<b>Interest rate options: tunnel</b>							
Objective: to keep interest rates in a tunnel							
EUR	75		75				

As of December 31, 2004, the difference between the market value and historical cost of the swaps used to exchange the fixed rate EMTN and private placements into variable rates represented a positive market value of 71 million euros.

The market value of the derivative instruments used to secure the financial expenses on long-term debt at Group level was negative by 66 million euros. This is explained, in the context of falling interest rates in the main currencies, by the Group's policy of backing long-term fixed assets with fixed-rate long-term debt at the time of investment. This funding policy is aimed at protecting the Group from long-term increases in interest rates.

The net market value of all interest rate derivative instruments is therefore positive by 5 million euros as of December 31, 2004.



## **Share buy-back**

In compliance with resolutions approved at the General Shareholders' Meeting on May 12, 2004, Air Liquide has implemented a share buyback program designed to:

- cancel shares in order to optimize shareholders' equity and net earnings per share, in one or several stages, within the limit of 10% of the Company's share capital over a 24-month period;
- buy and sell shares based on market conditions;
- allocate share options to its own or subsidiary employees;
- sell shares in any form, whether through the exchange of shares or payment in the context of financial transactions or acquisitions.

As of December 31, 2003, Air Liquide held 1,942,112 of its own shares (representing 1,9% of share capital), of which 1,915,171 were held directly.

In 2004, Air Liquide bought back 339,743 shares (adjusted for the 2,500 shares issued in June, 2004) for a total of 44.4 million euros (at an average purchase price of 130.60 euros) and cancelled 1 million shares. This rate of share buyback is lower than in 2003 (1,185,641 shares) given the major acquisition carried out in 2004.

As of December 31, 2004, Air Liquide held 1,376,249 of its own shares representing 1.3% of share capital, of which 1,346,431 were held directly. 1 million of the shares thus held have been set aside in the event of acquisitions or other financial transactions involving exchanges of shares or payment in shares, while 346,431 have been set aside in the event of share cancellation.

# Risk factors

## Market risks

Market risks are addressed in the Financial Policy section of the Management Report (page 91).

## Specific business-related risks

As of today, Air Liquide's overall business activity does not rely on third-party patents, nor does it depend on supply, industrial, commercial or financial contracts, or new manufacturing processes.

The Group serves more than one million customers in a broad range of industries, over an extensive geographic area, thus precluding any concentration of customer credit risk for the Group.

In spite of high price volatility for electricity and natural gas driven by market deregulation, Air Liquide's policy remains the indexation of long-term customer contracts to hedge these risks. Recent fluctuations in electricity prices led the Group to replace its pricing indices, for the regulated period, with indices relevant to each national market. For several years, the Group has followed the same approach for natural gas. In parallel, Air Liquide has optimized its policy for the supply of electricity and gas. This policy enables the Group to offer the best possible terms to its customers, safely and with transparency, as it is based on reliable and efficient sources of supply.

## Legal risks

The Group has a worldwide presence. Its subsidiaries operating industrial and medical gases production units are obliged to comply with rules and regulations in force locally, particularly in the technical field.

Furthermore, in Healthcare, certain products may be subject to drug regulatory control.

At this time, the Group has no knowledge of any exceptional facts or litigation, including in the very recent past, that could significantly affect its property, financial situation, activities or results.

## Industrial and environmental risks

Industrial and environmental risks are detailed in the section on sustainable development in the Annual Report, particularly in the following two sections: "Preserving life and the environment" (page 42) and "Sustainable development" (page 149).

These sections indicate the number of sites under the European Seveso directive and the number of equivalent sites worldwide, distance covered by delivery trucks, electrical and thermal energy consumption, water consumption, emissions into water and the atmosphere, and progress made towards quality (ISO 9001) and environmental (ISO 14001) certifications.

These sections also include:

- The Group's safety policy, which is a key priority, with results for the last 15 years;
- The formalization within a single framework of the standards for industrial management (IMS) designed to enhance reliability, safety and risk management of the Group's industrial activities worldwide.

In addition, the Report from the Chairman of the Supervisory Board on the Company's internal control procedures presents the Group's organization and procedures for managing risks (page 139).

## Insurance management

The Group has adequate insurance coverage, underwritten by first-grade insurers, for civil liability, property damage and business interruption. Since January 1, 2003, it has had in place a captive insurance company that retains part of the property damage and business interruption risk.

## Property damage and business interruption

Group property and business interruption are covered by property and casualty insurance policies underwritten in each country in which the Group operates. Almost all of these policies are grouped under an international program.

These policies, which are generally of the "All Risks except" type, cover fire, lightning, water damage, explosions, vandalism, shock, equipment breakdown, theft and, based on the country and in limited amounts, natural disasters.

Business interruption is insured for most production sites under these same policies.

The coverage period for business interruption is 12 to 18 months.

Property damage deductibles are generally 15,000 euros per loss for small sites and 400,000 euros per loss for large production units, except in the United States, where the deductible is 1,500,000 dollars per loss. Business interruption is covered after a deductible period of 15 days for most operations, except in the United States, where coverage begins after 60 days.

Since January 1, 2003, the Group has retained a portion of property damage and business interruption risk through a captive insurance company in Luxembourg. This captive insurance company covers losses of up to 5 million euros per loss over and above the deductibles to a maximum of 10 million euros per year. Beyond that amount, risks are transferred to insurers. The captive is fully integrated into the international damage and business interruption program.

Insurers conduct regular visits at the main industrial sites for risk assessment purposes.

### **Liability**

In terms of liability, the Group maintains two different coverages, one for the North American zone and another for the rest of the world. The North American zone is covered by insurance underwritten in the United States. For the other zones, the Group has taken out an umbrella policy, underwritten in France, which covers both the Company and its subsidiaries outside of the United States and Canada, beyond any local coverage.

These two policies cover liability of the Group companies for any damage they might cause to a third party in the course of doing business (operational risk) or arising from their products (product risk). Furthermore, with certain limitations, these policies cover the pollution risk and the costs of recalling products.

The amount of coverage is above 500 million euros. Both of these policies include several overlapping lines of insurance. Each line has been underwritten for a given amount with several insurers sharing the risk. Beyond the first line, the upper lines pick up the excess risk from the lower lines.

The policy underwritten by the Company in France serves as an umbrella for subsidiaries outside of North America. Under this umbrella, each foreign subsidiary has its own policy covering damages to third parties incurred through its activities or products. The amount insured for each subsidiary in its policy depends on its sales. Beyond the amount insured locally, subsidiaries are insured under the French umbrella policy.

The deductible is 2,000,000 dollars per loss for insurance underwritten in the United States for North America. The deductible of the umbrella policy underwritten in France is 15,250 euros per loss for the other countries, but with higher amounts for non-consecutive immaterial damage, pollution, recall costs and "Electronics" customers.

The main exclusions are deliberate acts, war, nuclear incidents and repair of defective products.

# Innovating for tomorrow

Technological innovation is one of Air Liquide's great strengths: in various locations worldwide, over 2,000 people work in research, technology and engineering centers. These teams contribute to the Group's advance in three major directions: sustainable development and the environment, health and hygiene, and advanced technologies. They develop innovative and competitive gas production technologies, as well as new applications and service offers. They also disseminate technical expertise within the Group while maintaining an active watch on technological developments.

## Moving towards more environmentally friendly industrial processes

Air Liquide is constantly developing new solutions to make its customers' industrial processes more environmentally friendly, in particular those involving combustion. The partial replacement of air with oxygen in coal-fired boilers, for instance, considerably reduces polluting emissions, in particular nitrous oxides (NOx), a by-product in part responsible for acid rain. Air Liquide is continuing tests on a pilot power plant in Ohio, United States. Similar developments are under way in other countries: in France, the Group is conducting research on a natural gas boiler in partnership with the Elyo company as part of a project supported by the *Agence de l'Environnement et de la Maîtrise de l'Énergie* (the French Agency for Environment and Energy Management).

In metallurgy and the glass industry, Group researchers are developing laser sensors that measure the atmospheric content of boilers very precisely, and make it possible to adjust production parameters in real time.

Another example of innovation beneficial to the environment is the use of carbon dioxide instead of sulfuric acid in the production of certain papers. Sulfuric acid releases sulfur compounds, a source of unpleasant smells and water pollution. Replacing this powerful acid by carbon dioxide also allows for more specific control over the various manufacturing processes and a reduction in the use of certain chemical additives. Air Liquide is fine-tuning this technology with the PTS Institute, a renowned paper industry research center in Germany.



### ■ Research

Metallurgy study of automobile parts after thermal treatment with the Group's gases.

## Innovation in 2004

Budget:  
**over 150 million euros**

**550** researchers  
representing more than  
**25** nationalities

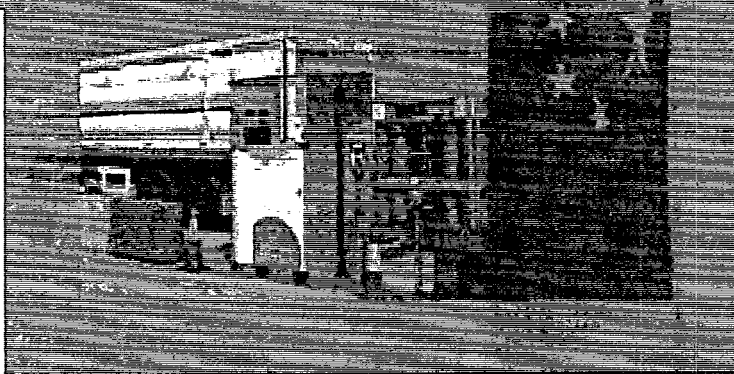
**8** R&D centers (France,  
Germany, the United  
States, Japan)

**2,601** protected  
inventions

Over **100** industrial  
partnerships

Over **100** international  
relationships with  
universities and research  
institutes

Indicators



### ■ Challenge Bibendum, China

The Challenge Bibendum, organized by Michelin in Shanghai between October 11-14, 2004, gave Air Liquide the opportunity to again show its expertise in gaseous hydrogen logistics. During this technology contest, over 150 vehicles were tested, in particular for their environmental performance. Twenty of them ran on gaseous hydrogen supplied from a special service station provided by Air Liquide. During the three days, some one hundred refills, approximately 300 kg of hydrogen, were carried out respecting safety procedures (three to four minutes per vehicle), for a total distance of 30,000 km.

## Hydrogen: environmental protection

In the energy field, hydrogen contributes to protecting the environment in two different ways: it reduces sulfur oxides emissions by desulfurizing fuels, and is showing potential as a clean energy carrier.

### Hydrogen, a cleaner energy

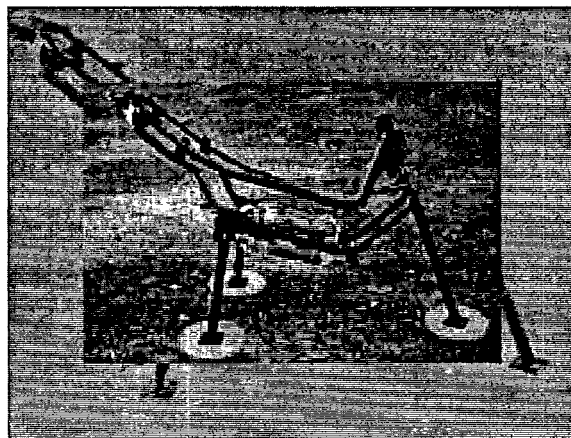
A very simple equation to begin with: hydrogen + oxygen → energy + water. Hydrogen is the only fuel that emits nothing else but steam during combustion. The idea is attractive from an environmental standpoint and offers an alternative to fossil fuels. After many years of research on this new energy carrier, Air Liquide now has leading-edge, comprehensive expertise of this technology, including production, storage, distribution and its use in a fuel cell.

### Fuel cells for mobile phones

In 2004, Air Liquide and its subsidiary Axane, which specializes in the design, development and manufacture of fuel cells ready for use, won a commercial contract with Bouygues Télécom in France. A fuel cell producing 2 kW power will supply energy to a telecommunications tower near Toulouse, France. Using a remote management system, local Air Liquide teams will be able to anticipate any maintenance or hydrogen supply needs. This undertaking vindicates fuel cell technology as an alternative power supply to GSM antennae at isolated sites without access to the regular power grid.

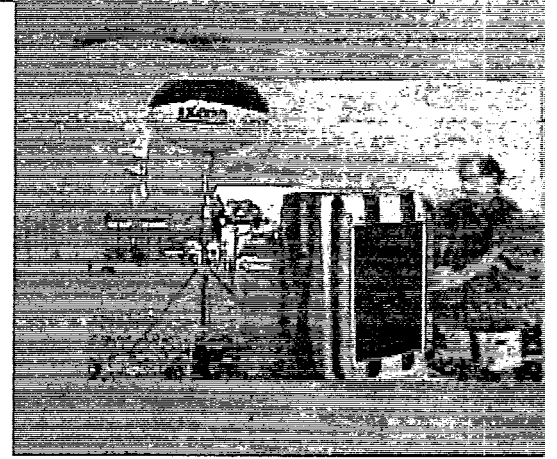
### Three pilot projects in urban transportation

Aside from stationary or portable applications (emergencies, major events), supplying power to urban transportation vehicles is a third mid-to-long term strategic development for the fuel cell. In the context of European Union and Japanese government research projects, Air Liquide has been running, since 2003, three gaseous hydrogen filling stations at a pressure of 350 bar. These stations are located in Madrid (Spain), Luxembourg, and Kawasaki (Japan). The Group also has a similar pilot station at its site in Sassenage, near Grenoble, France, where rapid, high-pressure filling technologies are being tested.



### ■ Hydrogen scooter

Air Liquide is developing a hydrogen cartridge system for light vehicles: when empty, simply replace it. This system is being developed for a scooter, with a range of about 120 km.



### On the cutting edge of technology for space discovery

Hydrogen is essential for the Ariane rocket: alongside the European space industry, Air Liquide has played a part in the launcher development for over 40 years. It supplies hydrogen and oxygen that propel the main stage of Ariane 5. These gases are also used for the upper cryotechnical stage of Ariane 5 Plus. The Group also participates in the design and manufacture of cryogenic storage for the rocket. Leveraging this expertise developed in a high-tech sector, Air Liquide researchers are now working on various solutions for storing hydrogen in liquid form (cryogenics), and in gaseous form in high-pressure tanks. In this context, the Group decided to set up a plant in Marl, in the Ruhr region in Germany, to process cylinders at 700 bar, a pressure three times higher than traditional cylinders, which greatly reduces hydrogen storage space.

### Several approaches for hydrogen production

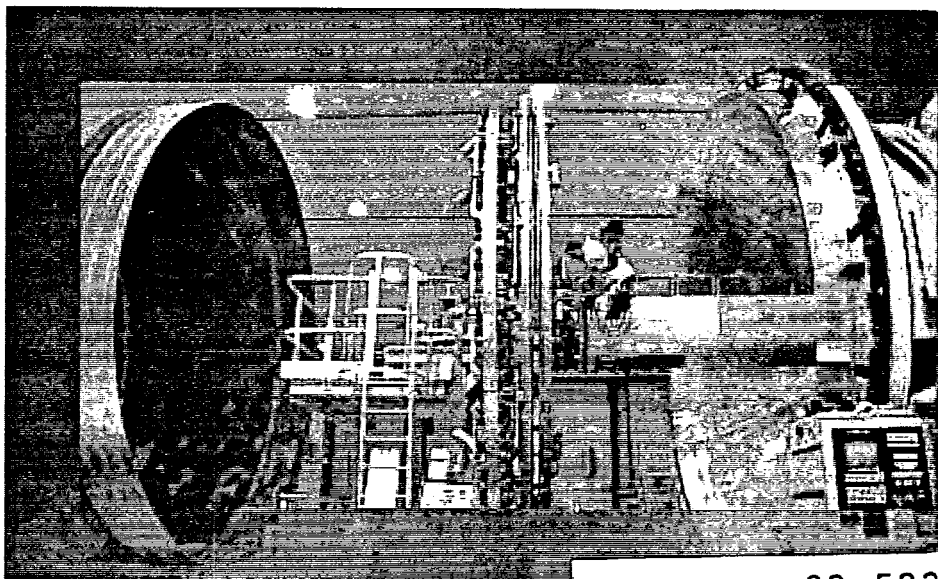
Today, hydrogen comes largely from processing natural gas with steam at a very high temperature. This approach is used to supply hydrogen to Large Industries customers and to refilling centers (trucks and cylinders). The Group also relies on electrolysis of water to produce hydrogen when customers with moderate requirements are located too far from processing plants. For the past three years, the HYOS product line has been highly successful with some fifteen electrolyzers installed worldwide. A third method consists in recovering, through purification, the hydrogen contained in gases resulting from chemical and petrochemical industry operations. It is currently used on a small scale, but is quite profitable.

### Air Liquide: an active member in the global hydrogen community

Many countries display keen interest in hydrogen energy. Air Liquide takes part in a great number of international projects and events. It is, for example, involved in the European HydroHy project for future storage methods, and also belongs to the European Hysafe competence network on hydrogen safety. In 2004, Air Liquide demonstrated its expertise in hydrogen and fuel cells on several occasions. These include the conference in Toronto, Canada, the forum in Hanover, Germany, and the global conference on hydrogen energy in Yokohama, Japan.

### ■ Cryospace, France

Workshop for cryogenic storage tanks for the Ariane 5 rocket, in Les Mureaux, near Paris.



### ■ Innovation award

In July 2004, the Air Liquide subsidiary Axane, received the "Grand Prix Siemens de l'Innovation" award for its Roller Pac line of fuel cells. Jean-Louis Etienne used this technology as part of his scientific mission on Clipperton Island.



### A new solution in Electronics

Semi-conductors and especially flat screen fabs use specialty gases in large quantities, generally delivered in cylinders. Today, Air Liquide offers its customers an integrated solution that includes products, on-site distribution systems and related services. This ensures a safe and reliable supply of gas up to the point of use. Whereas cylinders are available on demand, this integrated offer leads to multi-year contracts, thereby increasing the Group's visibility. The benefit to the customer is twofold: cost-optimization and Air Liquide's expertise. This offer, called Jumbo, was launched in late 2004.

### Healthcare and the food industry: always going further in the traceability and hunt for impurities

In the context of increasingly tight regulations on hygiene and safety of products, Air Liquide has developed new technology designed to measure the microbiological quality of gases, and detect possible micro-organisms in gases used, for example, in manufacturing food or pharmaceutical products. This patented innovation is now part of the Group's pharmaceutical offer, and was test-marketed in 2004 at several customer sites in France.

For the past few years, the Group has also been developing traceability solutions based on electronic chips and barcodes, in particular to monitor gas cylinders better.

### A greater therapeutic role for medical gases

Thanks to the Group's vigorous research in gaseous medications, their use is steadily increasing to include new illnesses, and new therapeutic indications. For instance, the Group holds a patent for an oxygen-helium mixture used in treating asthma, and has submitted a request for a marketing authorization. In October 2004, Air Liquide obtained a patent in Germany for the use of xenon in anesthesia. This gas is particularly useful in a number of surgical applications.

### Electronics: Air Liquide, a "molecule designer"

In the electronics sector, the introduction of new materials such as tantalum or hafnium, makes it possible to manufacture increasingly smaller and more powerful chips. The use of these materials in latest-generation chips requires Air Liquide to supply customers with new molecules, called advanced precursors, a number of which are born out of its own research and have been patented. TSA, for instance, makes it possible to deposit insulating films. It was launched in 2004 in partnership with Aviza, the equipment manufacturer based in Silicon Valley, United States. Other molecules are now being developed with an aggressive target in sight: chips with transistors reduced in size to 45-millionths of a millimeter!

### ■ Altop cylinders

In 2004, Air Liquide proceeded with the introduction of innovative cylinders that integrate the expansion of gas, and combine ergonomics with increased safety. Altop cylinders currently account for close to 30% of the cylinder stock that can be outfitted, and further improvements are under way.



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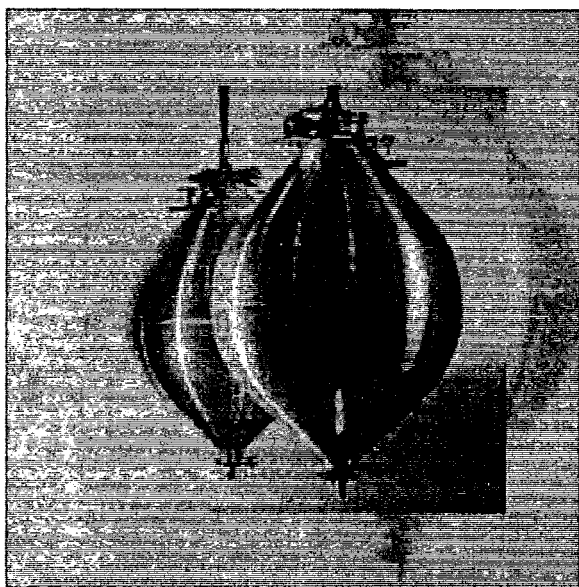
### Close to absolute zero with helium

The Advanced Technology Division (DTA) is focusing on cryogenic cooling solutions that come close to absolute zero ( $-273^{\circ}\text{C}$ ). Very low temperatures in particular enable researchers to deepen their understanding of particle physics. The most powerful particle accelerator in the world, under construction at CERN in Geneva, Switzerland, expected to be ready for use in 2007, is one of the major projects in this field. The Group is setting up 27 km of helium distribution lines in order to maintain at  $-269^{\circ}\text{C}$  the superconductor magnets of this giant ring, located 100 m underground. Air Liquide also designed and created cooling systems (superfluid helium) for infrared sensors on board the European satellites Herschel and Planck, to be launched in 2007.

This expertise in helium-related technologies also includes the production of helium liquefaction units. In 2004, for instance, DTA teams took part in several projects in Qatar, China, the United Kingdom, France and Taiwan.

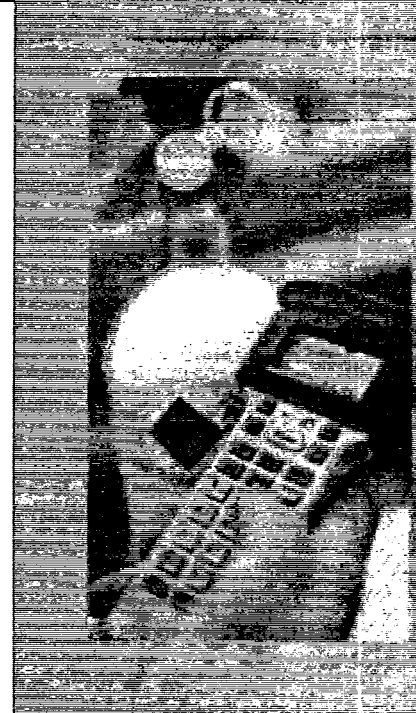
### Customized aeronautics solutions

Aeronautics is yet another field in which Air Liquide has leading-edge expertise. Membrane technology marketed through its subsidiary MEDAL was selected in 2004 by a large global manufacturer for on-board OBIGGS nitrogen generating systems intended to prevent the accidental explosion of reservoirs. In addition, the OBOGS oxygen generator, designed and manufactured by Air Liquide based on adsorption technology using molecular sieves, is being recommended by Airbus to airline companies for oxygen masks for future A380 passengers.



### ■ A high-performing airtight device

This sphere contains 1,140 liters of liquid helium (140 kg) to pressurize the cryogenic storage tanks of the Ariane 5 rocket. In order to keep liquid helium at very low temperatures ( $-269^{\circ}\text{C}$ ), the insulation using vacuum is very effective: only 1 mg of gas can go through the surface in 100 years!



### ■ Traceability

Electronic chip-based traceability solutions designed by Air Liquide and its subsidiary Athelia for the management of transportable Group equipment has won over many customers in a variety of fields. For example, STP, subsidiary of the French postal service, for the distribution of newspapers in containers; an international manufacturer of food products for its nitrogen-pressurized stainless steel packages; Canadian sawmills for drying high-quality wood; Mahou-San Miguel, a Spanish brewer, for its pressurized equipment for pumping draught beer under carbon dioxide; Primagaz in France and Repsol in Spain for their storage of LPG, etc. Even Microsoft, calls on Athelia and Air Liquide for this type of service.



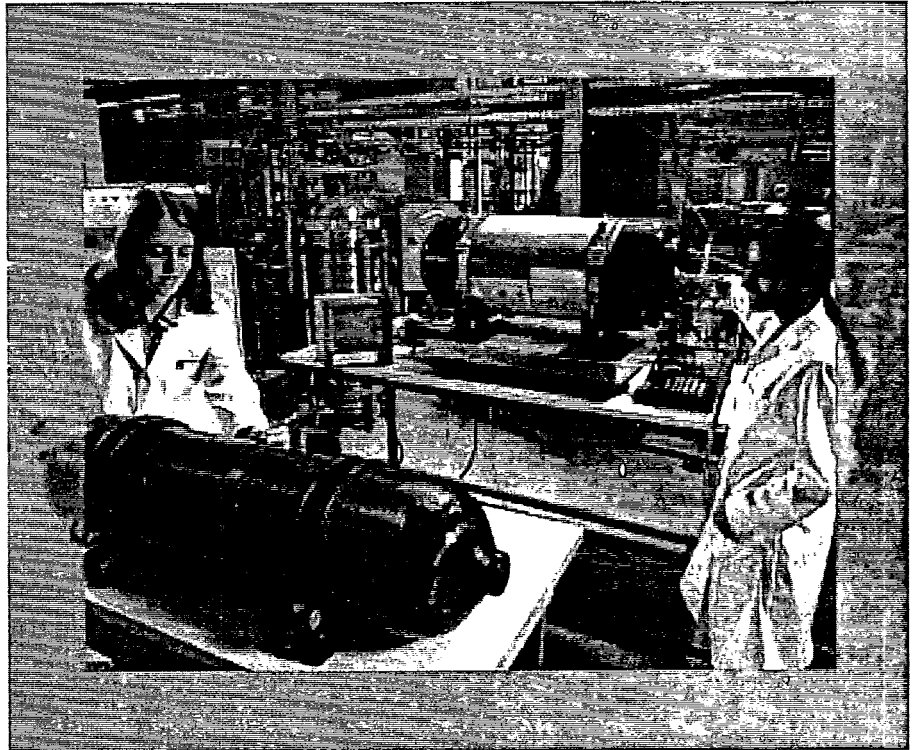


## Patents

Each year, the vitality of Air Liquide's innovation strategy results in many patent applications, numbering 225 in 2004. The Group's intellectual property heritage now includes 2,601 inventions protected by 8,702 patents. Close to 20% of these inventions stem from the recently acquired Messer activities. Air Liquide is the world's top patent applicant in industrial gases. Each high-potential invention goes through a protection process that includes Europe, the United States, Japan and China. This was the case for 48% of all protected inventions in 2004.

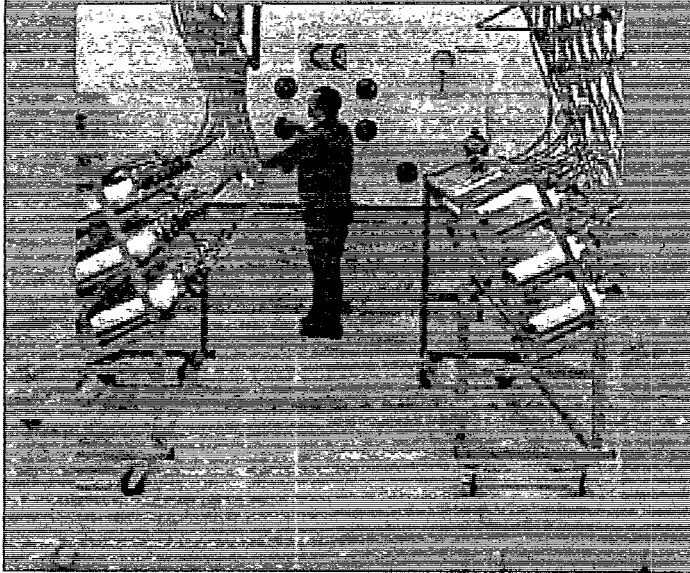
## Innovation: a mindset

Aside from the R&D teams, many Air Liquide employees contribute innovative ideas to improve the offer to customers and the Group's operations. To encourage this spirit of constant innovation, Air Liquide organizes Innovation Day each year on or around November 8, which is the anniversary date of the Group's founding in 1902. Each entity celebrates it in its own way. In Brazil, Japan, the United States, Canada, Australia and several European countries, contests provided the opportunity to recognize the best innovators for the year. In Spain and France, small multidisciplinary teams found new solutions to meet specific national issues thanks to innovation challenges. On the last Innovation Day, more than 7,000 Group employees took the opportunity to find out about some of the 300 inventions selected by the "innovation facilitators" appointed in the Group's main subsidiaries.



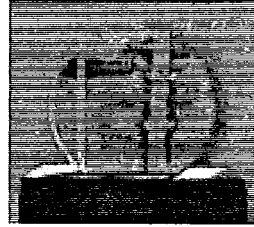
## Sustainable development

More than half of the Group's R&D budget is devoted to research focused on environment and sustainable development: energy efficiency, cleaner production processes and new energy sources.



### Innovation trophy, Scandinavia

The trophy recognized a mobile cart system that avoids needless manipulations when filling small cylinders. In Scandinavia, all employees are actively involved in innovation, and in 2004, they voted on the innovation of the year. Each one of the six new innovations selected was presented by its team via video broadcast to all sites in Denmark, Sweden and Norway on November 8, the Air Liquide Innovation Day.



### Teleflo: an idea from the field

A number of innovations prove to be of prime importance to Air Liquide. This is the case for the Teleflo remote management system, which was initially conceived by four Group employees in 1991. This remote monitoring solution for gas production and distribution facilities worldwide has been greatly improved since its beginnings, and has become essential for managing deliveries and maintaining equipment, in particular for on-site units. It was awarded first prize on Inventors' Day in 2004. All facility parameters are monitored 24/7. Today, some 15,000 Teleflo systems are in place at Group units in 43 countries, and 30,000 have been sold to a wide range of customers to help them run their own facilities.



### ■ Inventors' Day

Patented innovations contribute significantly to the Group's development. Each year, Air Liquide honors the inventors of successfully commercialized patents. In 2004, Air Liquide reviewed the past commercial performance of patents awarded in 1997 and 1998, and acknowledged 155 inventors of 12 different nationalities. On November 22, 2004, 30 inventors received particular tribute during a ceremony held at the *Conservatoire National des Arts et Métiers* in Paris, in the presence of Professor Émile-Etienne Beaulieu, President of the *Académie des Sciences* in France.

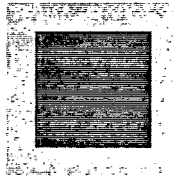
# The strategy in our core business, growth in three dimensions

*Air Liquide is the world leader in industrial and medical gases. With its expertise in leading-edge technology and an exceptional geographic presence on five continents, Air Liquide achieves growth through a dynamic development strategy based on three drivers.*



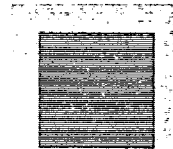
## **A broad and firm base**

- Air Liquide's first growth driver centers on its broad customer base in fully-developed economies. Gases are used universally in industrial processes, and their role is essential. Industrial production volumes steadily increase over time which naturally results in increased gas sales.
- Oxygen, for example, is used more and more in the production of steel and glass. Through this application, less natural gas is consumed and fewer emissions are released into the atmosphere. Industrial processes are thus more efficient and less polluting. Air Liquide benefits from industrial production growth over the long term through the products it sells in advanced economies.



## **Seizing new opportunities in emerging geographies**

- Emerging economies with high growth rates are the second strategic development driver for Air Liquide: Eastern Europe, Russia, China, the Middle East, India, Latin America, etc. The Group adapts to each location, strengthening its current activity or positioning itself to capture opportunities. Demand for basic industrial goods is sustained in these countries, resulting in particularly rapid growth in sectors such as iron and steel, chemicals, or metal manufacturing. For Air Liquide, this translates into sales opportunities of significant volumes of gas.
- Air Liquide's regional presence in emerging economies also enables the Group to support the development of its large international customers. It provides them the same high-quality service, everywhere and at all times. A first contract signed with a Large Industries customer is often a starting point in the development of Air Liquide's activities locally.

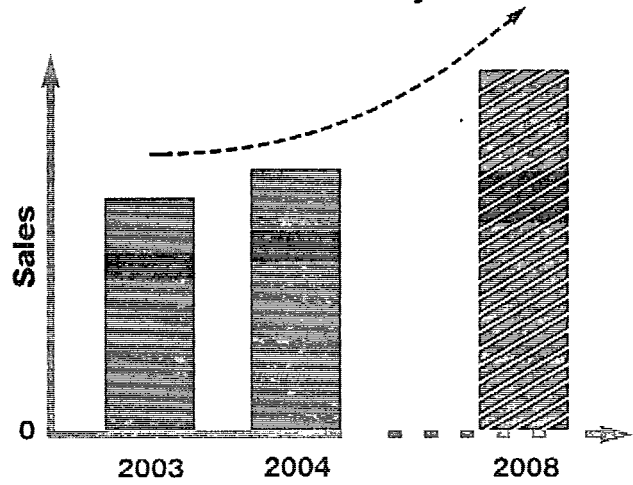


## **Accelerating growth through technology, innovation and services**

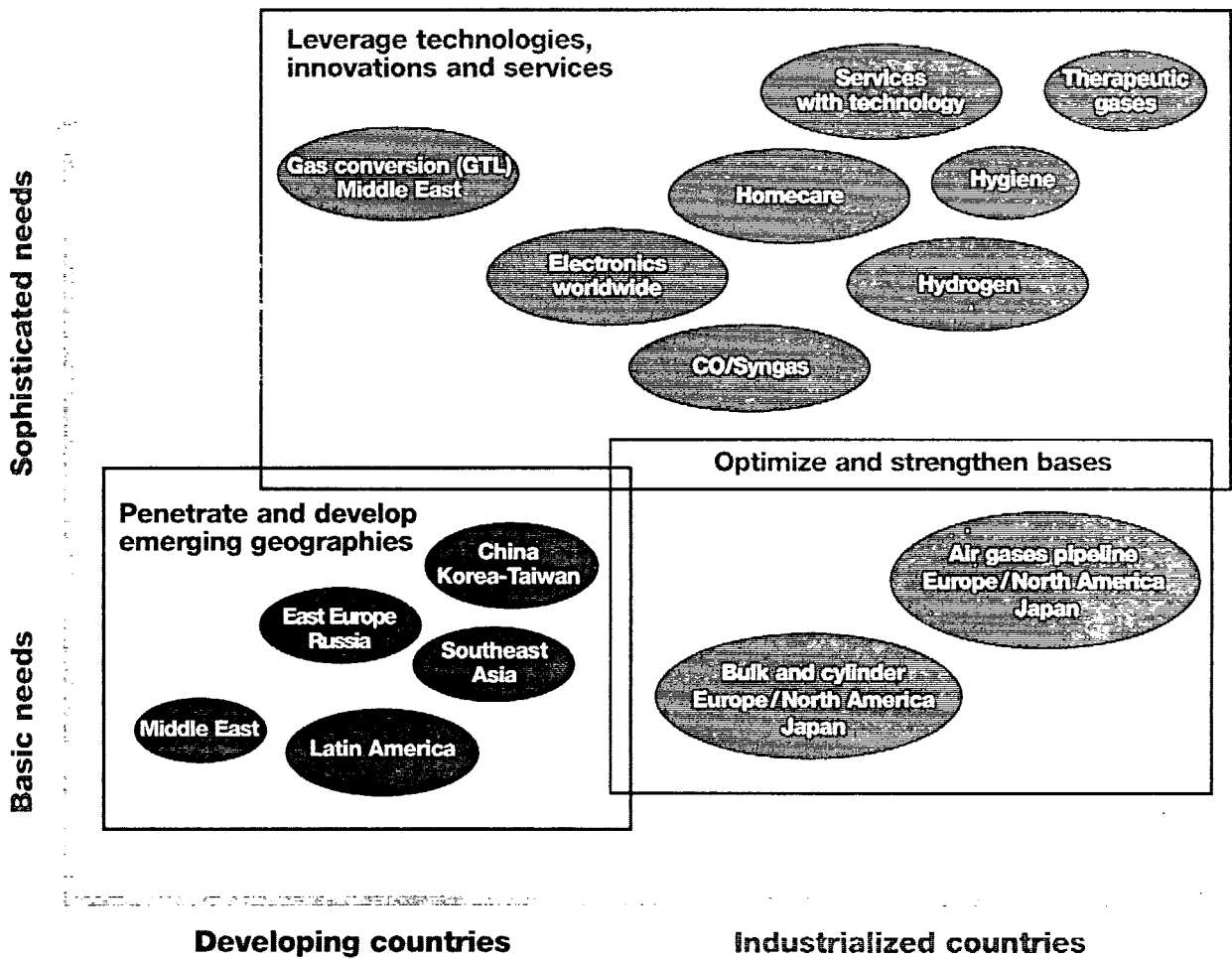
- The Group's third growth driver is its ability to transform markets through new offers providing further added value based on new technologies, innovation and services. New products play a key role – hydrogen, carbon monoxide, new molecules for the latest-generation electronic chips, therapeutic gases and, hospital hygiene products, etc. – as do new applications using the Group's traditional gases, such as oxygen, used more and more for the purpose of environmental protection, or xenon for its anesthetic properties.
- The Group's offer includes an increasing number of high value adding services: supplying new gases up to the point of use, remote monitoring of facilities, traceability, analysis, metrology or, in healthcare, homecare for patients with respiratory illnesses. Today, most solutions, whether commercialized in advanced economies or in new geographies, reflect this threefold approach, based on technology, innovation and services.

Medium-term outlook:  
+7% to +9% a year

Blue, red, green: Air Liquide chose these colors, basic components of light, to stand for the Group's three sources of growth.



# Capturing sources of growth





## European platforms

Air Liquide has created European teams to speed up marketing of innovative solutions across the continent and to support the regional development of large customers.

They lend their support to local teams by combining leading-edge skills in applications and use of gases, with their ability to negotiate with large customers.

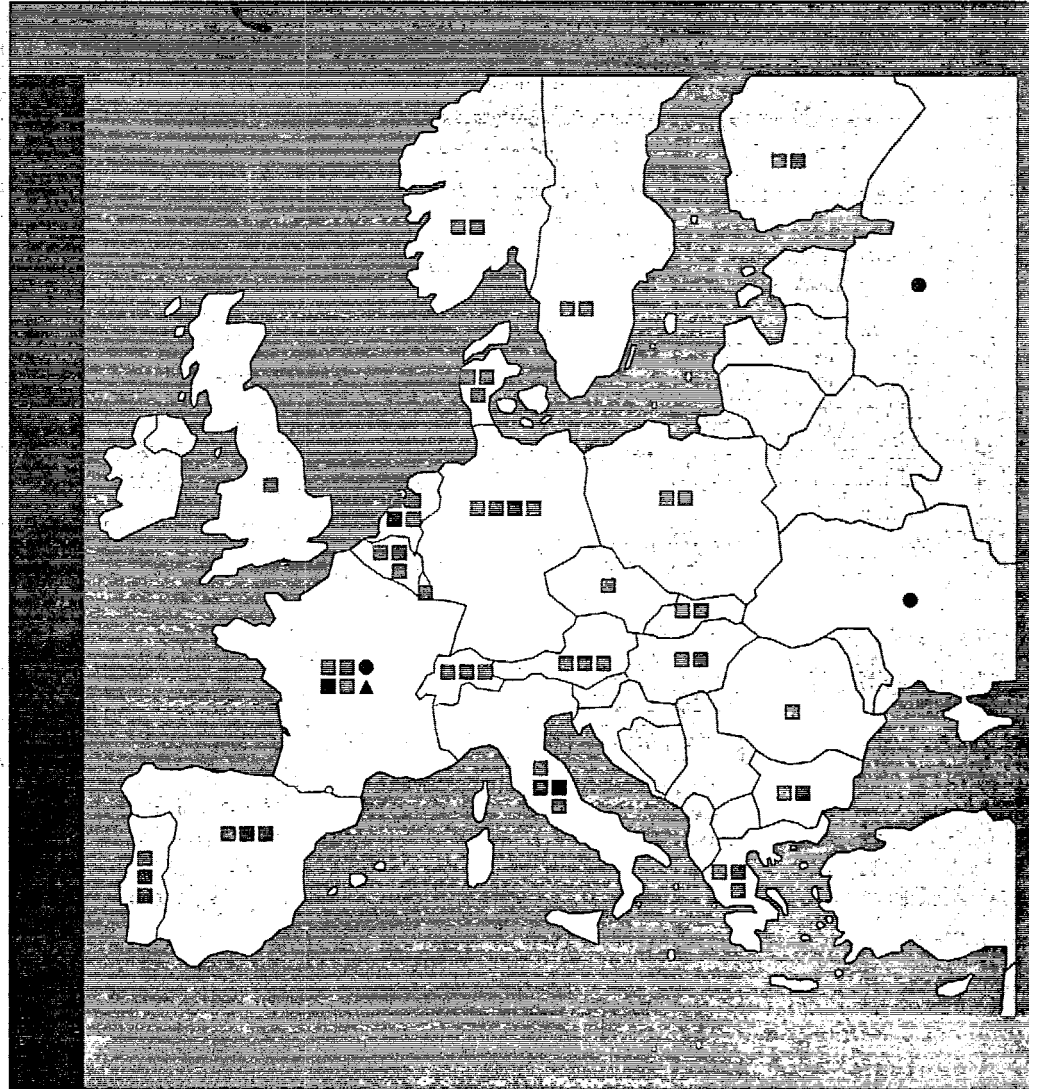
The Group achieved significant successes through this dual European and local approach in 2004, particularly in central Europe, as shown by the contracts signed in Hungary with Delphi (electronics assembly) and Michelin (tires), and in Poland with Daicel (airbags).

**Western Europe**  
Austria  
Belgium  
France  
Germany  
Luxembourg  
Switzerland  
Netherlands  
United Kingdom

**Southern Europe**  
Greece  
Italy  
Portugal  
Spain

**Northern Europe**  
Denmark  
Finland  
Norway  
Sweden

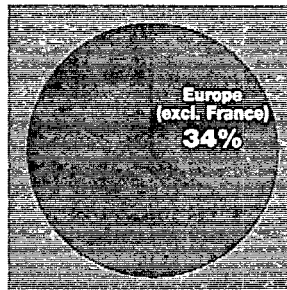
**Eastern Europe**  
Bulgaria  
Czech Republic  
Hungary  
Poland  
Romania  
Russia  
Slovakia  
Ukraine



### Employees



### Sales



- Industrial Customers
- Large Industries
- Electronics
- Healthcare
- Engineering
- ▲ Research Center

# Europe (excluding France), a new dimension

*In Europe, the high point of 2004 was the acquisition of Messer's activities in Germany and the United Kingdom. In a climate of moderate economic growth, Air Liquide continued to progress, particularly in Large Industries, with the ramp-up of new hydrogen units. Healthcare operations also recorded good performances, in Germany and Southern Europe in particular.*

## **Messer: an exceptional opportunity**

The acquisition of Messer's activities in Germany and the United Kingdom was the major event of 2004. It has opened up new opportunities for Air Liquide in the heart of Europe, and enabled the Group to establish a targeted presence in the United Kingdom. Through this transaction, the Group more than doubled its sales in Germany gaining many new customers, in particular in the Ruhr and Rhine region. Air Liquide is now the number two supplier of industrial gases in this country. The project for acquisition of Messer's activities was carried out diligently and effectively, in line with initial estimates, particularly in terms of synergies. Divestments in Germany required by the European Commission were realized on schedule and, as a result, the acquisition was completed in less than 11 months. A new organization at the European level was established on January 1, 2005, centered on a European Management Committee, aimed at strengthening cooperation between the Group's operations across Europe.

The committed involvement of the teams in Germany resulted in advances both in the integration process and in business development in the various sectors. For example, the Group broadened its service offer to Deutsche BP, doubling the supply of hydrogen to the Gelsenkirchen refinery in northern Ruhr, in order to reduce the sulfur content of fuels produced. It also signed a contract with BGH, a manufacturer of specialty steels, to supply air gases along with storage and distribution equipment at its Siegen site. In Electronics, Air Liquide strengthened its partnership with AMD in Dresden. The Group was selected to supply ultra-pure gases, energy and services for the new 300 mm fab that will begin production in 2006.

## **Heading East**

This new, significant step forward in Germany, combined with a stronger position in Austria following the acquisition of Aga's operations in 2001, provides the Group with a solid base to speed up development in central Europe. On the Schwechat site, near Vienna, for instance, the Group set up a new air separation unit with a capacity five times greater than the current unit. Its location near Slovakia, the Czech Republic and Hungary, enables the Group to meet the growing need for industrial gases in these countries, which have recently joined the European Union. In 2004, Air Liquide extended its long term contracts with Borealis, a chemicals manufacturer, and OMV, a refinery, two large companies operating in Schwechat, Austria.

**Markus Sieverding**  
Chief Executive Officer  
of Air Liquide Germany



### ***What impressed you most during the Messer acquisition process in Germany?***

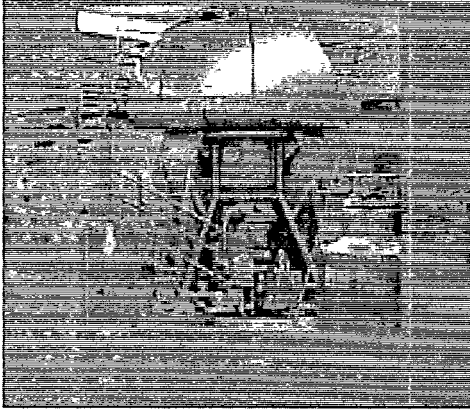
It was amazing to see the incredible amount of work done in such a short time. In less than a year, and simultaneously, we had to integrate the teams, respond to the European Commission's numerous inquiries, carry out the required divestments and, of course, properly manage daily affairs! I am proud to say that we achieved our integration and organizational goals, as well as the initial synergies.

### ***How did you meet this challenge?***

The teams involved worked miracles thanks to their dedication to the project. I was particularly impressed with the teams from both Air Liquide and Messer, their level of commitment, and their drive to create the new organization.

### ***Where does Germany stand in the new European organization of Air Liquide?***

The inherent strength of the German economy, the country's strategic location in the heart of Europe and Air Liquide's stronger position there are all assets for the Group's development in central and eastern European countries.



### ■ Helium for research, Sweden

Air Liquide signed a contract to supply helium to one of the largest nuclear magnetic resonance spectrometers in the world, recently commissioned in the Göteborg laboratory. Liquid helium is needed to cool the giant magnet centrally located inside the spectrometer, a device used in macromolecular biology studies.



### A dynamic island, Sicily

Sicily is an important development center in Italy. Hydrogen contracts signed in 2004 with two refineries in Priolo strengthen the Group's activities in this refining and petrochemical complex, where it already supplies very large quantities of oxygen to ISAB Energy for the gasification of heavy petroleum residues. Air Liquide is also involved in Catania at the STMicroelectronics site, an important Group customer in Electronics.

### Hydrogen keeps its promises in Large Industries

Reflecting the Group's ever broadening offer to Large Industries customers, hydrogen continued to make significant progress. Production levels at the hydrogen production unit in Antwerp, Belgium, increased more quickly than expected and new customers have been connected to the Air Liquide pipeline network. This unit supplies the petrochemical and refinery complex in the ports of Antwerp and Rotterdam, Netherlands. Several refineries have also benefited from Air Liquide's offer to deliver additional hydrogen on demand. Spot sales in hydrogen represented significant volumes in 2004. In addition, a carbon monoxide production unit will start production on this site in Antwerp in the first half of 2005. Hydrogen is also making gains in Italy, where Air Liquide signed two major contracts with ERG Raffinerie Méditerranée and Esso Italiana in the refining complex in Priolo, Sicily.

### A large cogeneration project in Rotterdam

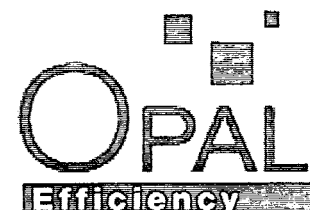
Supply of energy and steam by cogeneration from natural gas is yet another example of the Group's enlarged offer. Shell Nederland Raffinaderij B.V. in Pernis, near Rotterdam, chose this more efficient and less polluting solution to meet its steam needs. Air Liquide will build a very large unit (about 700 t/hour of steam and 300 MW of electricity) to begin operations in 2007. Most of the electricity produced will be sold to ENECO Energie, a large utilities supplier in the Netherlands.

### Always going further in food safety

The Group's offer to Industrial Customers is progressing in the metal manufacturing, glass, laboratory gases, pharmacy and food processing sectors. In food processing, Air Liquide has developed new solutions to meet the growing requirements in food safety. A case in point is Aligal Water, launched in Italy for manufacturers of carbonated mineral waters. With this service, Air Liquide provides its customers with an unprecedented level of quality control for carbon dioxide, with analyses that are increasingly effective at detecting impurities. Aligal Water also includes batch traceability, a certificate of analysis with each delivery and remote monitoring of stock.

### Metrology on a European scale

Services are growing, whether they are directly or indirectly related to the use of gases. Metrology, in particular, is moving in the fast lane. Metrology, a critical aspect of the manufacturing process, involves the control and calibration of all measurement devices needed to run a production site. In 2004, Air Liquide completed the acquisition of Livingston metrology operations and acquired an interest in MG Tarature, Italy.



### Equipment and facilities

Until now, entities in European countries procured minor parts needed in gas distribution facilities independently (taps, thermostats, valves, etc.). Using integrated software, such purchasing will soon be managed centrally through a European platform that will operate a single store and make fast and efficient deliveries throughout Europe. Response times will improve and costs will be reduced.

All Group metrology units are now arranged under the Trescal brand, which serves 13,500 customers in nine European countries. The successes of 2004 include, in Germany, the extension of the partnership with Alcatel, already an Air Liquide customer in France, to monitor equipment at its site in Stuttgart, and the growing momentum of the contract with Eurocopter (EADS) in Donauwörth.

### New energy-related markets in welding-cutting

The Group's welding-cutting operations, managed by Air Liquide Welding, are based on the manufacturing and marketing of equipment (welding units, metal-cutting machines), consumables (electrodes, wire, etc.) and related services. Industrial rationalization in this activity continued in 2004. The good level of European business was supplemented by new developments in the highly focused energy market: applications tied to hydrocarbon production (Iran, Russia), manufacture of welded tubing for transporting oil and gas (India, Thailand, Ukraine), and the construction of power plants (China).



### Spain

Metal cutting by thermal lance using oxygen.

### OPERA information system, Europe

The objective of the new OPERA information system is to have all European entities adopt common operating principles and create new synergies among subsidiaries in accounting, production, logistics, financial reporting, order follow-up, purchasing, etc.

Eventually, everyone will speak the same language. Aside from better business visibility in real time, achieving consistency will result in better customer service, streamlined processes, and therefore, lower costs. In early 2005, OPERA was implemented in five European countries (France, Italy, Switzerland, Portugal and Belgium) with 3,500 users.





## Fighting nosocomial infections

An essential component in Air Liquide's offer to hospitals is hygiene, which helps combat nosocomial illnesses along three dimensions. First, in the sterilization of surgical instruments, Omasa, a Group entity specializing in this field, is the European leader. In 2004, it grew steadily, in particular in France, Italy (Umberto I Polyclinic in Rome) and Spain (Murcia Hospital). Second, disinfection products for hands, surfaces, instruments, air, etc. are managed by the subsidiaries Anios in France and Schülke & Mayr in Germany. This activity is also experiencing strong growth. In 2004, the Group acquired Arcana, a company in Austria specializing in disinfection products for hospitals and healthcare professionals. It also secured a majority interest in Unident in Switzerland, a leader in the field of disinfection and sterilization for the dental sector. Third, the Group provides hygiene-related services such as air network monitoring and cleaning, and staff training.

## Continued growth in homecare for respiratory illnesses

For the most part, the Group's Healthcare activities are concentrated in Europe, where it is recording significant growth rates, especially in homecare. These activities are primarily concerned with two major respiratory pathologies: chronic obstructive pulmonary disease (COPD), known as "smoker's illness", and sleep apnea, whose treatment is gaining recognition in Europe. Air Liquide Santé plays a crucial part in both instances, and the number of patients treated at home is constantly increasing. The Group develops solutions that provide greater freedom of movement, and a range of services that simplify lives of patients and those around them. Beyond respiratory illnesses, Air Liquide's service offer also includes diabetes management services (insulin pumps) and treatments via perfusion.

## Gases are seen as pharmaceutical products in an increasing number of countries

In the hospital, the Group's offer includes medical gases, hygiene solutions, equipment and many other services, in particular in the sterilization field. After France, Belgium and Germany, Spain raised medical gases to the status of pharmaceutical products in 2004 (oxygen, nitrous oxide, etc.).

The use of Kalinox, an analgesic gas, and Kinnox, used in the treatment of pulmonary hypertension, is steadily growing in European countries.

Patents have been obtained for new therapeutic gases used, for example, in the asthma treatment (oxygen-helium mix), or stroke prevention (xenon). Authorization procedures to market these products are under way.



## Healthcare coordination, Italy

Medicasa, an Air Liquide Santé subsidiary, goes beyond treating patients by ensuring the coordination between the various medical staff, suppliers, and payment organizations.

# France, growing through services

*In 2004, the Group experienced steady growth in France in a fairly slow economic environment. Growth was more sustained in specific sectors, such as Healthcare, Services, Engineering and Construction. The start-up of a major hydrogen unit in the Large Industries sector was a highlight, along with an upturn in Welding activities.*

## Broad service offers for Industrial Customers

Reflecting Air Liquide's strategy to develop high value-added solutions, services in France performed strongly in all markets in 2004.

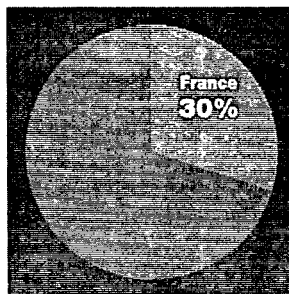
The welding-cutting sector recorded close to +20% growth. The launch of the Cap Optima solution, for instance, attracted several customers, in particular Sotralentz, one of the leading European manufacturers of tunnel-boring machines and wire mesh. This solution improved the customer's ability to manage production and its efficiency by creating a network of 60 sensors installed on welding units in three workshops, and connected remotely to a central computer processing all production data.

The Group's offer to pharmacy customers, centering on the Phargalis solution that combines medical gases and services, has also expanded. In addition, Air Liquide provides a complementary service in support of customers' efforts to increase safety in manufacturing processes. This service consists in testing the performance of their gas networks up to the point of use, and includes auditing and performing physio-chemical and microbiological analyses at critical points of the network.

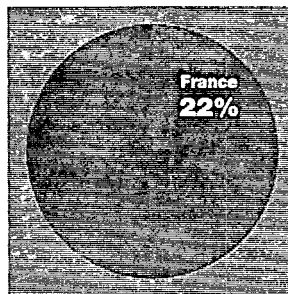
Another component of Air Liquide's offer, Local Customer Support teams, is growing. Based on-site, these teams take charge of all gas-related activities: from delivery, to equipment maintenance and installations audit. Progress in this sector in 2004 was particularly significant in research laboratories, chemicals, aeronautics and the glass industry. There are now some 100 Local Customer Support teams in France.

Metrology also recorded significant successes. Trescal, for example, signed a framework agreement with Faurecia, an equipment manufacturer, which will eventually involve all of its sites in France. Such trends clearly show the desire of customers to develop broad partnerships with national and international service providers.

**Employees**



**Sales**



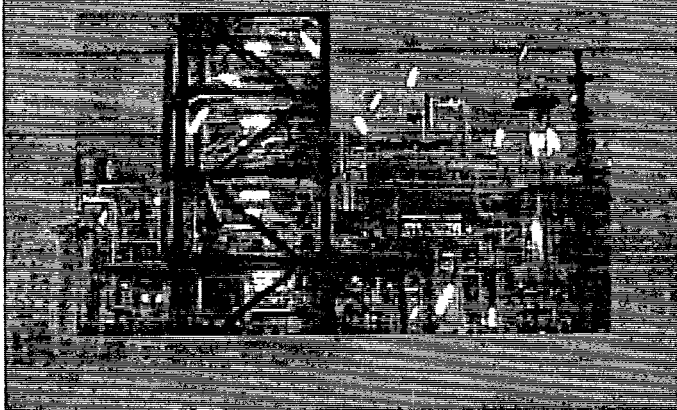
## ■ New generation of burners

Alglass Sun is a new-generation burner for glass furnaces that is particularly flexible and emits remarkably few nitrous oxides. This technology will be installed long term for the first time in a new furnace for Newel in Châteauroux, France, where Pyrex-brand household glassware is manufactured. Alglass Sun is supported by the ADEME (the French Agency for Environment and Energy Management) for its contribution to reducing polluting emissions.



## Cylinder services: @ Passrel

Today, every customer supplied by Air Liquide with cylinders in France has access to the new Passrel service. Using a secure Internet portal, customers have access to personalized data: status of transactions with Air Liquide, gas consumption, logistical information and on-line ordering. Soon, customers will be able to view their contracts online as well. Passrel is also a quarterly magazine featuring additional information and an annual business summary, which is mailed to customers.



### ■ Port-Jérôme, Normandy

On January 18, 2005, Air Liquide and Esso commissioned the hydrogen production facility that will supply the new fuel desulfurizing unit at the refinery in Port-Jérôme, near Le Havre. To deliver hydrogen, produced by reforming natural gas, Air Liquide's engineering teams set up this state-of-the-art facility immediately adjacent to the customer's site.

### Close partnerships in Electronics

In Electronics, at the Altis Semiconductor site in Corbeil-Essone, near Paris, Air Liquide set up an information system (Fabnet) designed to monitor, in real time, the entire supply-chain for all products being used in the fab: gases, liquid products, raw materials, etc. Altogether, 65 on-site employees provide all the services.

Furthermore, the Group is supplying support products and services to the latest-generation 300 mm fab in its ramp-up stage at the Crolles 2 site, near Grenoble. This fab is the outcome of an alliance between STMicroelectronics, Philips and Motorola. STMicroelectronics also invited Air Liquide to provide all services related to the use of gases and liquid chemicals to its fab in Rousset, near Aix-en-Provence.



### Conservation of prepared foods

Today, institutional food services are increasingly popular with businesses and employees alike.

Air Liquide has developed an application using carbon dioxide for the cold storage of foods prepared by central kitchens for large communities. This solution, developed in partnership with Iseco, a manufacturer of food trolleys, was first adopted in 2004 in Saint-Etienne.

### Healthcare: constantly making progress in the treatment of respiratory illnesses and services to hospitals

Today, France is Air Liquide's largest market for homecare services. The Group supports nearly 300,000 patients, most of whom suffer from respiratory illnesses, but also diabetes or illnesses requiring treatment by perfusion. In 2004, in the homecare sector, growth was particularly strong in the treatment of sleep apnea and the follow-up of diabetic patients on insulin pumps.

In 2004, the VitalAire subsidiary launched an oxygen therapy monitoring station in order to contribute to a better understanding of respiratory illnesses and their treatment. A study was conducted on oxygen use practices with the help of 120 hospital chest specialists and 600 of their patients. This study is under the supervision of an independent scientific committee. Similarly, a second study is under way on home treatment of diabetes with insulin pumps.

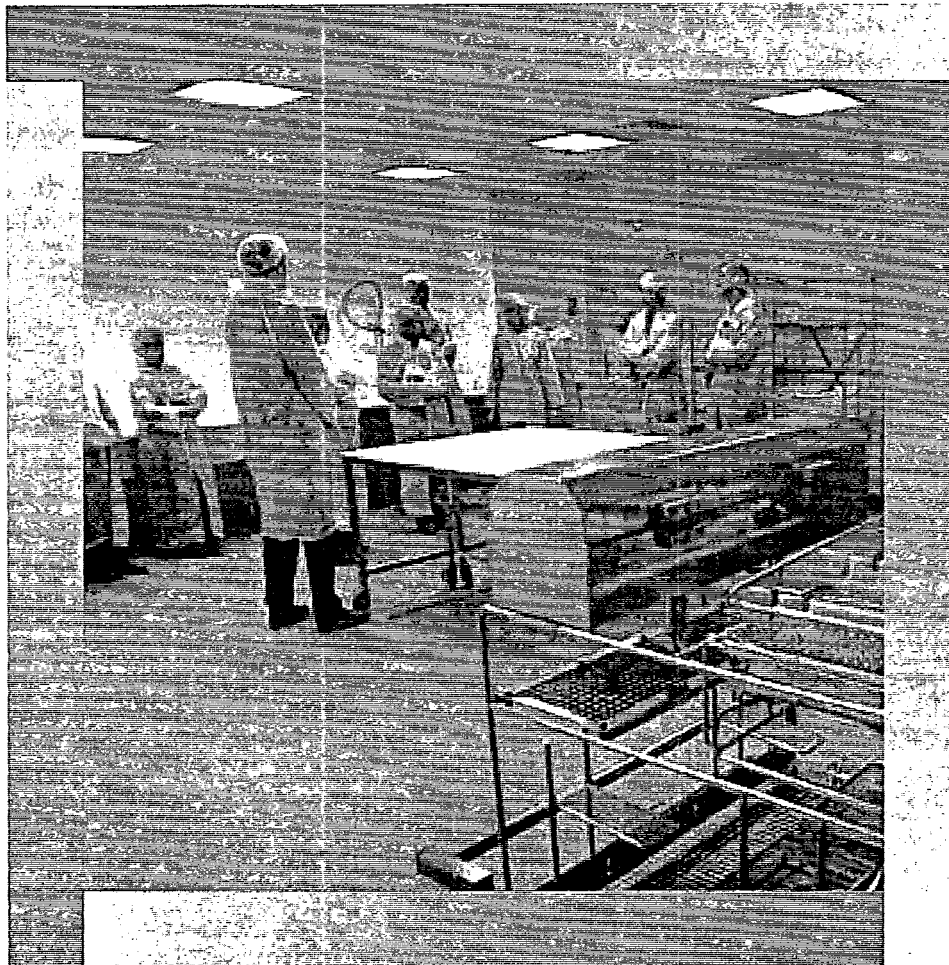
In hospitals, the therapeutic gases Kalinox (analgesic) and Kinox (treatment of pulmonary hypertension) are experiencing strong growth. Kalinox is now available in Présence cylinders, a convenient and much appreciated delivery method.

Customer service is also moving forward: hospitals can now access their medical gas consumption and stock levels through the Extranet portal on the Group's site. New modules on gas orders, safety and training will be available soon.

In terms of hospital hygiene, a public health priority, Air Liquide Santé signed a major surgical instrument sterilization contract with the main hospital in Marseilles. It also inaugurated its first center for the outsourcing of sterilization services (outside the hospital) near Paris. In addition, Anios, its subsidiary specializing in disinfection products, recorded a good performance in 2004, and extended the range of its services in the dental sector through the acquisition of Unident, a Swiss company.

### ■ Sterilization, Bonneuil-sur-Marne

This sterilization center near Paris was inaugurated in October, 2004. Operating around the clock, it is managed by Omasa, a specialized entity of Air Liquide Santé, and already provides medical instrument sterilization services to several institutions around Paris.



### Cosmetics and pharmaceuticals

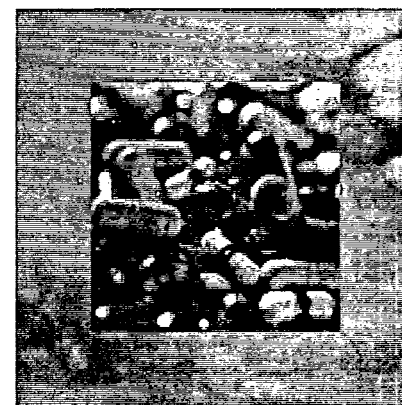
Air Liquide is active in specialty chemicals through its SEPPIC subsidiary, which manufactures and markets surfactant products worldwide, particularly for cosmetics and pharmaceuticals. In September, 2004, it opened a pearling unit at its site in Castres, in the south of France. Emulsifying agents are transformed into pearls, which are easier for industrial customers to use and measure out. They are manufactured from fatty alcohol and vegetable sugars, both renewable raw materials. SEPPIC is also established in Germany, Italy, Belgium, the United Kingdom, the United States and China, and has over 600 employees.



### Sleep apnea

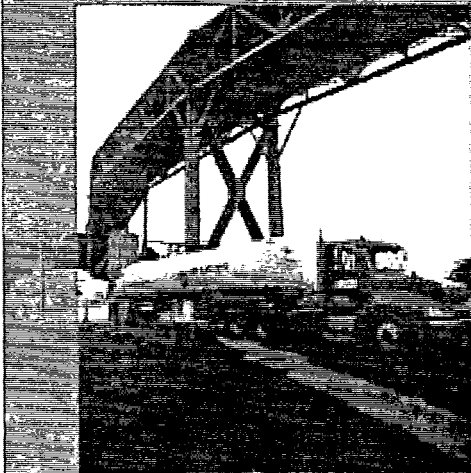
Sleep apnea occurs when, during sleep, breathing stops for short periods. It is often accompanied by the unpleasant sound of snoring. Sleep apnea increases the patient's cardiovascular risk, and results in periods of daytime drowsiness with the risk of accidents, particularly while driving. This pathology, first recognized twenty years ago, is treated with nighttime ventilation via a mask.

This treatment is beginning to be covered by health insurance organizations in a growing number of countries. However, sleep apnea is still under-diagnosed: it could affect millions of people in France.



### ■ Modeling air flows

Pfizer, the number one supplier in the pharmaceutical industry worldwide, adopted the air flow modeling solution developed by Air Liquide: Exp'Air. Both a diagnostic and decision-assistance tool, it contributes to guaranteeing the quality of ambient air in pharmaceutical manufacturing units in order to avoid contamination risks.



**North America**

Canada  
United States

**South America**

Argentina  
Brazil  
Chile  
French Guiana  
Paraguay  
Uruguay

**West Indies**

Guadeloupe  
Martinique  
Trinidad and Tobago

**San Francisco bridge**

Liquid nitrogen cools everything, even concrete!

This gas was provided by Air Liquide to reduce the temperature of concrete to 10°C while casting the foundations for the future San Francisco Bridge in the United States. This was a massive task in itself: 227,000 liters of liquid nitrogen injected continually over 40 hours into 10,000 tonnes of concrete.



- Industrial Customers
- Large Industries
- Electronics
- Healthcare
- Engineering
- ▲ Research Center

# Americas, a dynamic year

*All Air Liquide activities experienced steady growth in the Americas, boosted by a particularly favorable economic climate in North America. The sale of liquid gases recorded strong growth with contracts being signed and units starting up in the hydrogen business. The acquisition of Messer's activities was a key event in the United States in 2004.*

## **Messer: an exceptional opportunity**

Through the acquisition of Messer, Air Liquide is now the number three supplier of industrial and medical gases in the United States, and is very close behind the number two. The acquired Messer activities were established mainly in the North and East, which accounts for over 50% of American industrial production. Until then, Air Liquide operated primarily in the western and southern regions of the United States. This complementary geographic presence provides the Group with excellent national coverage. The integration of Messer's activities was completed consistent with initial projections, for both the divestments required by the Federal Trade Commission, and the rapid integration and achievement of synergies.

## **Hydrogen: many successes**

In Large Industries, 2004 was marked by many successes in the United States. Refineries are putting the final touches in their efforts to comply with the new regulations on reducing sulfur content of fuels. Since hydrogen plays a key role in desulfurizing processes, its consumption is growing significantly, while refineries are increasingly outsourcing their requirements. In 2004, Air Liquide launched a very large hydrogen production unit at the Chevron Texaco site in El Segundo in California. Moreover, it won a major contract with a large refinery in Texas, eventually resulting in the construction of a large hydrogen production unit connected to the Group's existing pipeline network along the Gulf of Mexico. Air Liquide is strengthening its position in this high-growth market in a key refinery area. It is now the hydrogen partner for each of the six refineries in Corpus Christi, Texas.

**Woody Garmon**  
President Large Industries  
Americas



### *How is the hydrogen market for refineries developing in North America?*

In North America, particularly in the United States, refinery consumption of hydrogen has experienced strong growth in recent years. Ten years ago, refineries were completely self-reliant, but today, many of them are facing much greater needs, and therefore turn to outside partners, such as Air Liquide.

### *What is Air Liquide's position in this market?*

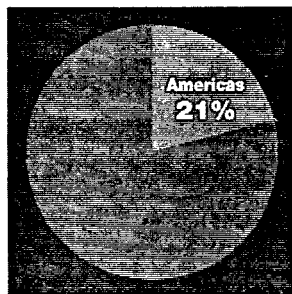
Within ten years, Air Liquide has become one of the leading suppliers of hydrogen to American refineries. This market doubled between 2000 and 2004, and will double again by 2007 to reach 85 million m<sup>3</sup> a day.

By that time, Air Liquide should be providing close to 16% of the hydrogen used by refineries in the United States.

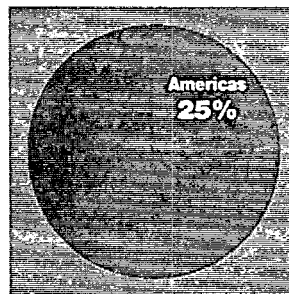
### *What is the Group's development strategy in this field?*

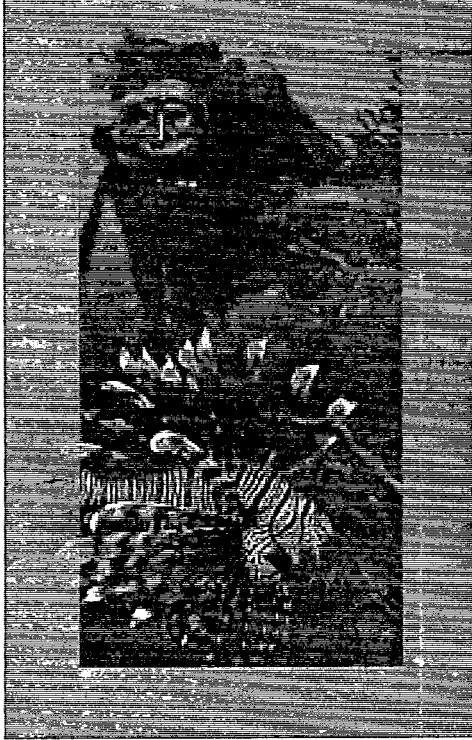
Air Liquide generally supplies hydrogen to a cluster of refineries: their cumulative needs result in economies of scale and investments in large-capacity, leading-edge production units. This strategy is a source of value, both for the customers and the Group.

**Employees**



**Sales**





### ■ Diving

Aqualung, an Air Liquide subsidiary, designs and markets worldwide a full range of professional and recreational diving equipment and products. In the United States, this business performed strongly in 2004, particularly due to the launch of new diving equipment and the popularity of the market for competitive swimming.

### Large quantities of oxygen for hydrocarbons in Canada

Mining large deposits of heavy hydrocarbons in the Athabasca oil sands in Alberta, Canada, is another growth driver in the field of energy. This activity experienced accelerated growth with the rise in oil and natural gas prices. Operators are gradually upgrading their processes, more respectful of the environment than traditional mining techniques, and for which very large quantities of oxygen are needed. Thus, in 2004, Air Liquide signed a contract with OPTI-Nexen to build an oxygen unit for partial gasification of hydrocarbons extracted from the subsoil. This unit, producing 3,800 tonnes a day, will be the largest in North America. Air Liquide also expanded its service offer to the oil and gas industry in Western Canada, particularly in carbon dioxide and nitrogen for the assisted recovery of hydrocarbons.

Boosted by the economic recovery, sales of air gases by pipeline also recorded a strong performance in the Americas, particularly in the chemical, and iron and steel industries. In this latter sector, one should note the increase in the air gas supply to Siderar in Argentina, and a major contract signed with North American Stainless in the United States.



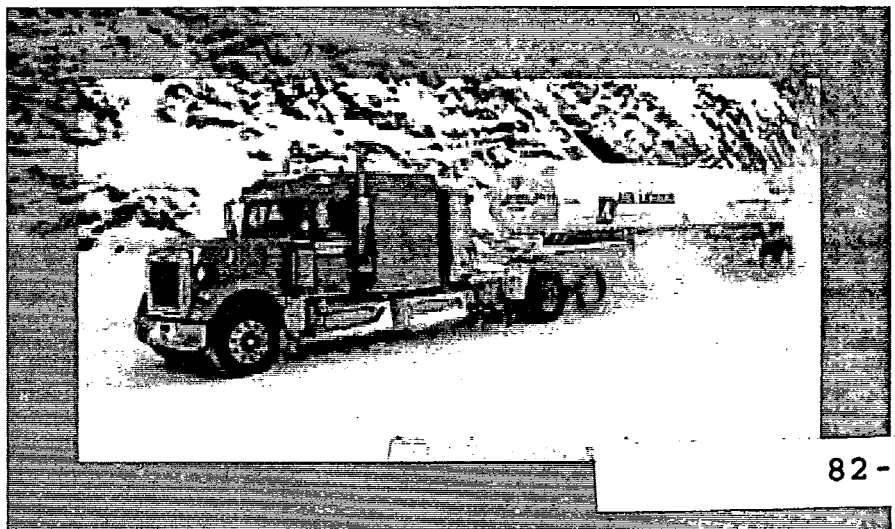
### High-quality wines

To make quality wine, it is important to keep grapes cold to prevent oxidation. The Boréal carbon dioxide-based protection and cooling system was first developed in the field in Italy, and has quickly won over many European winemakers (in Spain, France, Greece and Italy). It was introduced in the United States during the last grape harvest in California.

### Electronics: strengthening the partnership with Texas Instruments

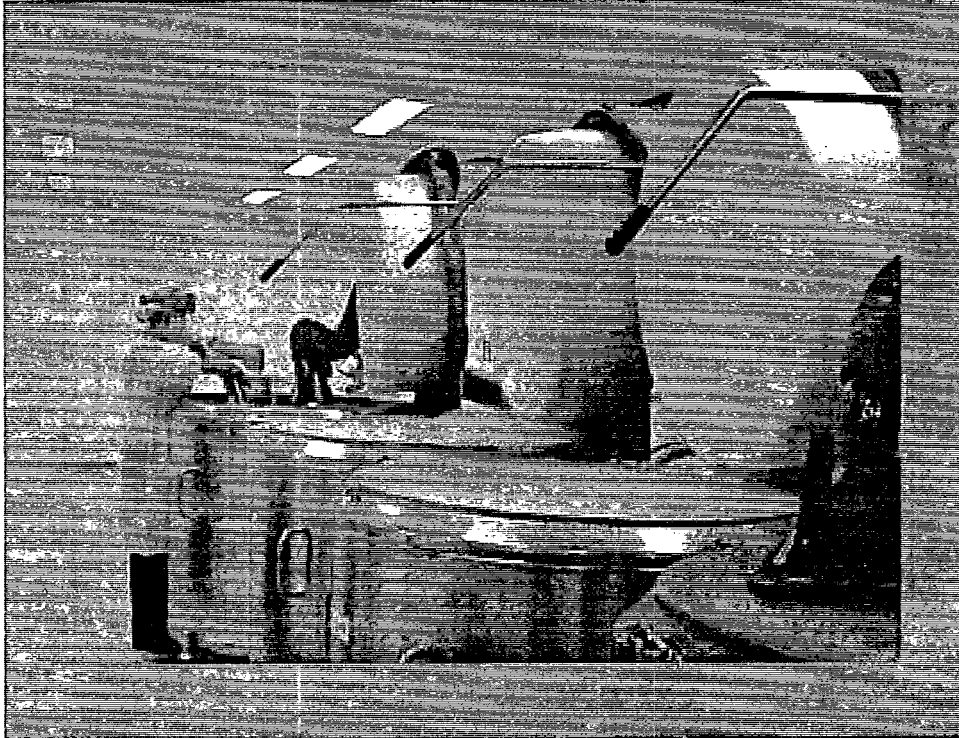
The strengthened partnership with Texas Instruments (TI) was the highlight of the year in Electronics. Air Liquide secured a new exclusive 15-year contract to supply ultra-pure gases, equipment and related services to TI's new 300 mm fab in Richardson, Texas. Similarly, all existing carrier gas contracts were renewed at the very important Dallas site. Air Liquide's partnership with TI extends to all of the manufacturer's sites in the United States. Some 300 Group employees work in these semiconductor production units to ensure the safety, quality and reliability of gas and fluid supply up to the point of use in clean rooms: this is the Total Gas and Chemical Management (TGCM) service. Air Liquide Balazs teams top off the service offer with their expertise in fluid analysis.

### ■ Liquid oxygen delivery, Alaska



### ■ Cryoconservation, Brazil

Air Liquide signed a major contract in Rio de Janeiro with Cell Preserve for the cryoconservation of biological tissues.



### Cylinder recovery, Chile

In June, 2004, Air Liquide embarked on a large-scale program in Chile to recover unused cylinders from customers using low quantities of gas. All Air Liquide centers in the country were involved in this project, which resulted in the collection of nearly 500 cylinders in four months. This approach has been adopted permanently as part of the larger plan to improve operational efficiency and optimize investments. The subsidiary in Uruguay has recently followed suit.

### Laboratory gases have the wind in their sails

The Group's liquid gas services for Industrial Customers experienced strong growth in 2004, particularly in the food processing, thermal treatment, combustion and environmental application sectors in the United States. Many on-site gas production units were set up for chemical, metallurgy and aeronautic customers. Cylinder gas sales also increased, particularly in laboratory gases. These gases are essential for calibrating analyzers used, for example, to monitor automobile engine emissions which are subject to increasingly strict regulations.

The field of combustion is another one of Air Liquide's strengths as the Group is constantly developing new oxygen-based technologies to reduce noxious emissions into the atmosphere, improve furnace productivity, and facilitate the recovery of carbon dioxide following production. In 2004, Air Liquide signed two major contracts in the United States for the supply of oxygen to aluminum manufacturers' smelting furnaces.

The North American technical platform, a team of experts facilitating deployment of the Group's innovative solutions, also grew steadily in 2004. It greatly contributed to the introduction of a new service for deep-freezing food products using latest-generation tunnels from the Crustflow line.





#### Pacific

Australia  
New Caledonia  
New Zealand  
Polynesia

#### Emerging Asia

China  
India

#### Southeast Asia

Indonesia  
Malaysia  
Philippines  
Singapore  
Thailand  
Vietnam

#### Northeast Asia

Japan  
South Korea  
Taiwan

### ■ Engineering, China

The Group is setting up large air gas units to service major contracts signed in Asia and increase gas production capacity, in gaseous or liquid form, to meet the requirements of the very dynamic Industrial Customers market. The engineering center in Hangzhou, established in 1995 and located near Shanghai, currently has more than 200 employees. Specializing in the production of large units for the Group and third parties, it plays a key role in Air Liquide's development in Asia. In 2004, the center secured four major contracts with large chemical, and iron and steel groups.



### ■ New advances in steel, South Korea

The South Korean group Posco is one of the world's leading companies in the steel industry. Air Liquide has already supplied 13 turn-key air separation units to Posco in South Korea, which is now setting up a stainless steel plant in China, close to Shanghai. Air Liquide will design and operate a new air separation unit for Posco with enough production capacity to supply other customers in the area as well.

- Industrial Customers
- Large Industries
- Electronics
- Healthcare
- Engineering
- ▲ Research Center

# Asia-Pacific, accelerated growth

*In 2004, Air Liquide took advantage of all-round growth in Asia, notably in the northern and eastern parts of the continent where growth was especially sustained. The Group strengthened its Electronics operations in Japan, expanded across the board in China, secured key positions in the flat screen business in Taiwan, and achieved very good results in Large Industries in South Korea...*

## China's east coast is booming

Building on the remarkable economic growth in China, Air Liquide has notably strengthened its presence there in 2004: more and more contracts being signed, especially in the steel and electronics sectors with nearly +40% growth in sales; the decision to invest an average of 100 million euros a year over the next five years, over 200 employees hired, etc. The Group has been in China for many years, initially established in the three large economic basins of Guangdong-Hong Kong, Shanghai, and Beijing-Tianjin. Today, Air Liquide is expanding its activities to new high-potential areas such as the Shandong peninsula.

## Major contracts signed in 2004

The Shanghai area has experienced the most spectacular growth in China. Air Liquide signed an agreement with ZPSS, a subsidiary of the South Korean steelmaker Posco, to supply substantial volumes of oxygen, nitrogen and argon to its plant under construction in Yangjiagang, 130 km from Shanghai, on the Yangtze River. The Group also strengthened its position in the Caojing chemical park south of Shanghai. An air separation unit started up in 2004 to supply major international customers via pipeline. In 2005, a hydrogen and carbon monoxide production unit will start operating in this same complex. Further south, Air Liquide's activities are flourishing in the Guangdong Province and Hong Kong. Signing a large steel contract there was among the highlights of 2004. In the Beijing-Tianjin area to the north, Electronics achieved the main success this year. The Group will supply ultra-pure nitrogen to BOE-OT, the first fully-owned Chinese producer of TFT-LCD flat screens. A few hundred kilometers further away, the Shandong peninsula has become a new industrial development basin. Air Liquide won two major contracts to supply nitrogen by pipeline to Li Dong Chemicals and air gases to Chinese steelmaker Rizhao.

**Mok Kwong Weng**  
Regional Director  
for North-East Asia



## How does Air Liquide benefit from growth in Asia?

The Group has been operating on this continent for many years, and it is now entering a new stage, as it plans to invest one billion euros in Asia over the next five years, half of which in China. Many international companies are moving into or strengthening their presence in Asia, and by joining forces with the best of them, Air Liquide is strengthening its foundation to sustain growth in the years to come.

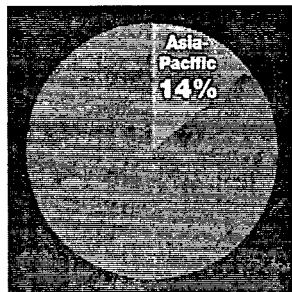
## What assets can the Group count on in this area of the world, especially in China?

One of our main assets is the first-rate engineering center in Hangzhou, close to Shanghai. Its ability to design gas production units in-house is a key competitive advantage. This center allows us to make very competitive bids to major customers at the same time ensuring supply to smaller ones locally.

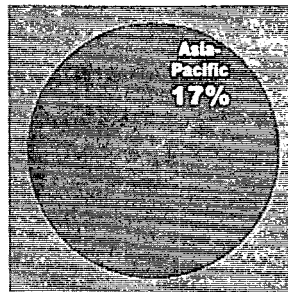
## What is the secret behind Air Liquide's success in China?

The excellent quality of our teams is a major strength behind our success. Diverse cultures, experiences and skills are blending very effectively and result in an exceptionally powerful combination.

## Employees



## Sales





■ **Japan Air Gases, Japan**  
Medical gas center

**Japan Air Gases: a base strengthened to benefit more fully from the Japanese recovery**

In terms of sales, Japan is by far the Group's largest market in Asia. Established in 2003, Japan Air Gases (JAG: 55% Air Liquide, 45% BOC) achieved five billion yen in synergies in two years, which was earlier than anticipated.

JAG was ready when the Japanese economy returned to growth in 2004, which resulted in robust earnings and a strengthened market share. In Electronics, sales rose significantly and major contracts were signed to supply gas and equipment to expanding fabs and new fab plants. The Group was also successful in the chemical, iron and steel, and glass industries.

**TFT-LCD flat screens: 30% to 40% growth**

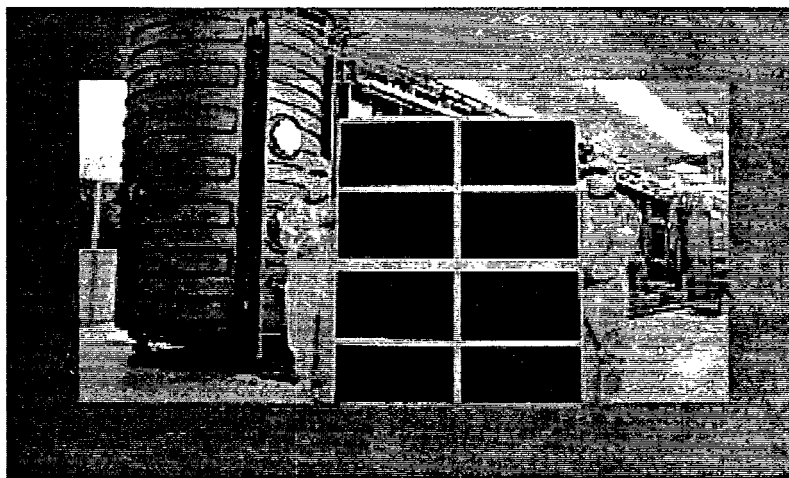
Whether in our family or professional lives, flat screens from Asia are showing up all around us. Those based on TFT-LCD technology are especially prevalent and rely heavily on ultra-pure gases, providing a key growth driver for years to come.

For the past two years, Air Liquide has secured 40% of new business opportunities in this market primarily based in Japan, Taiwan, South Korea and China. The Group is making progress in the Taichung Scientific Park in Taiwan through a new contract signed with AUO, the number three flat screen manufacturer in the world. Air Liquide also enjoyed successes with LG Philips in South Korea, via a joint-venture named Daesung Sanso, and BOE in China, near Beijing.

The semi-conductor industry is not lagging behind: Air Liquide signed several contracts with major electronics players, especially in Japan (Toshiba, Sony, etc.) and in Singapore, where, among other things, it has been supporting the new developments of STMicroelectronics. Overall, the Group achieved over 50% of its Electronics sales in Asia, where it is very well positioned. This is why, very early in 2004, the Group's worldwide Electronics head office moved to Tokyo.

■ **Glass for flat screens**

Glass used in manufacturing flat screens is a high-quality "technical" glass. TFT-LCD screens, for example, are composed of two sheets of specialty glass, 0.7 mm thick. High-temperature furnaces (approximately 1,650°C), using large quantities of oxygen, are needed to melt this glass. Sheet forming comes next with a float process involving stretching glass sheets over a tin bath. This process involves nitrogen and hydrogen. Air Liquide supplies the technology to use these gases, the Alglass line of burners for instance, which also considerably reduces the emissions of nitrous oxides (NOx). The Group signed, and began to implement, several major contracts in 2004, in particular in Japan (Asahi Glass) and in Taiwan (Corning, NH Techno).



### ■ Solar cells, Philippines

Solar cells turn solar energy into electricity. SunPower Corporation, the industry leader, chose Air Liquide to supply and manage all ultra-pure and specialty gases at its new unit near Manila.



### Developments in Southeast Asia and Australia

The Group has also performed well in Southeast Asia and in Australia, where Air Liquide signed a 15-year contract with Comalco Aluminium, a subsidiary of the international mining group Rio Tinto, to supply air gases to its future alumina refinery in Gladstone, Queensland. With this success, Air Liquide will build its first air gas separation unit in this state in northeastern Australia. This unit will also produce liquid gas for Industrial Customers. The Group has therefore strengthened its partnership with Rio Tinto, and will supply another one of its subsidiaries, Hismelt, in Western Australia, at its new generation pig iron production site.

In Southeast Asia, Air Liquide's Vietnamese subsidiary, until now mostly focused on northern Vietnam, has recently won its first contract near Ho Chi Minh City, in the south, with a subsidiary of the Australian steelmaker Bluescope.

### Air Liquide solidarity

Air Liquide is active in many Asian countries, especially those hard hit by the tsunami disaster: India, Thailand and Indonesia. Since December 26, the nearest entities mobilized their resources to ensure an emergency supply of medical gases. In addition to financial assistance, Air Liquide also donated products and equipment, including several tons of disinfection products and emergency respirators.

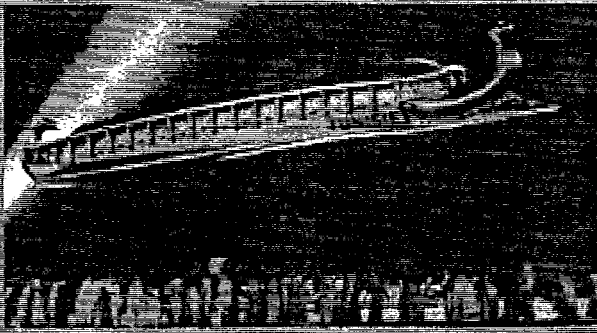
### ■ Medical equipment, India

In 2004, the Horus intensive-care ventilation systems, marketed by the Air Liquide subsidiary Taema, have been very successful with resuscitation services in hospitals in India. Taema offers respiratory assistance systems worldwide for emergencies, anesthesia and resuscitation, along with systems for the distribution of medical gases and homecare.



### Traceability of trucks, Indonesia

In order to maintain ongoing contact with truck drivers, and to be in a position to react quickly in the event of an incident or delay, Air Liquide Indonesia has outfitted all its vehicles with a "black box". Key information, such as truck location and speed, is communicated to the logistics center in real time. In cases of breakdown or excessive speed, an alarm is activated. The driver and assistance team can communicate with each other at any time. This new solution, less expensive and more efficient than the previous radio system, improves safety, optimizes delivery routes, and accurately updates customers on delivery schedules.



**North Africa  
and Middle East**

- Algeria
- Egypt
- Lebanon
- Morocco
- Qatar
- Tunisia

**West and  
Central Africa**

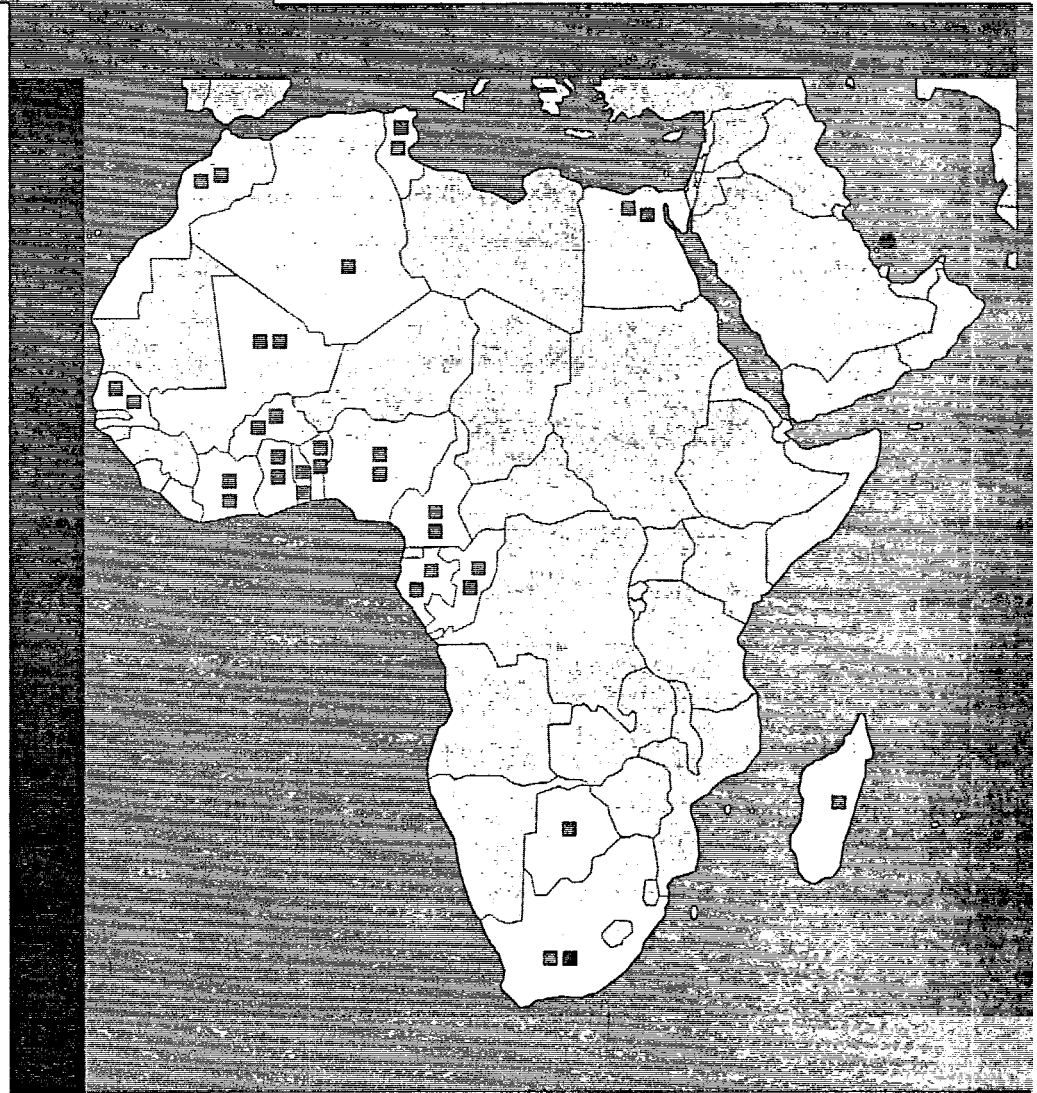
- Benin
- Burkina Faso
- Cameroon
- Democratic Republic  
of the Congo
- Ivory Coast
- Gabon - Ghana
- Mali - Nigeria
- Senegal
- Togo

**South and  
East Africa**

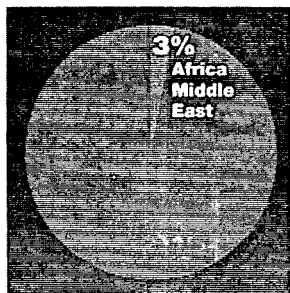
- South Africa
- Botswana
- Madagascar
- Reunion Island

**African Nations Cup,  
Tunisia**

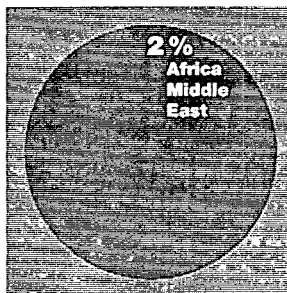
A Carthaginian galleon containing 700 m<sup>3</sup> of helium supplied by Air Liquide, was the star of the show during the soccer African Nations Cup held in Tunis in February, 2004.



**Employees**



**Sales**



- Industrial Customers
- Large Industries
- Electronics
- Healthcare
- Engineering
- ▲ Research Center

# Africa and Middle East, successful integrations

*In 2004, Air Liquide's performance in these two areas was mixed depending on the country, and resulted overall in moderate growth. South Africa and Egypt stand out for their solid performance in terms of both growth and profitability.*

## **Successful business integration in Egypt and South Africa**

Egypt and South Africa, the two African countries in which Air Liquide acquired Messer activities in 2002, are harvesting the rewards of a successful integration. The Group is expanding there with good profitability and gains in efficiency. In Egypt, growth in the steel market is particularly strong. In 2004, Air Liquide supported the expansion of one of its customers, ANSDK, by making investments at the steelmaker's site in order to meet its growing demand for oxygen. In South Africa, the metal fabrication sector is very dynamic, and the Group performed well with regard to products and specialty gases for laser cutting. Air Liquide is also making progress there in the wine-making and healthcare sectors.

## **Deploying new solutions in North Africa**

In North African countries, the Group introduced many innovations by mobilizing its network of Mediterranean ALTEC experts. These innovations include the Arcal line of welding gases, the new Smartop and Minitop cylinder taps, and, in healthcare, the analgesic gas Kalinox. In Morocco, Air Liquide set up a unit to produce hydrogen using water electrolysis (HYOS) at an STMicroelectronics site, a first for this large electronics customer.

## **Development of oil and gas-related activities in Central Africa**

Air Liquide benefited from the strong growth in the oil and gas industry around the Gulf of Guinea (Central Africa and Nigeria). It is worth noting that significant resources have recently been found in Equatorial Guinea. Air Liquide supplies the industry from its base in Port-Gentil, Gabon. In 2004, it started up an argon cylinder filling center. In West Africa, the Group recorded increased sales of products and services to the gold mines of Ghana and Mali.

## **First steps in the Gulf countries**

In terms of fossil fuel production and conversion, Group investments usually cluster near known deposits, first and foremost in the Middle East. Sizable projects are being developed, for example, to convert natural gas on site to fuel or methanol, a base product in the chemical industry. Among these processes, the GTL (Gas to Liquid) technology consumes vast amounts of oxygen. Air Liquide recently opened an engineering office in Qatar to monitor these promising developments.

Helium is found in underground deposits, usually combined with natural gas. It must first be separated before being purified and liquefied for transportation. Air Liquide continued construction of a large helium purification and liquefaction unit in Qatar. The Group is planning to purchase nearly half of the helium produced there in order to supply its customers worldwide.

**Erich Caro**  
Chief Executive Officer of  
Air Liquide in South Africa



*By way of an introduction, could you say a few things about South Africa?*

South Africa is going through major changes and Air Liquide plays a part in its transformation, in particular through its commitment to the Black Economy Empowerment (BEE). The Employment Equity Act, which the Group abides by, is just one example of such commitment. This act gives every employee the opportunity to move up within the company, specifically through better access to knowledge and many training programs. We have identified a number of individuals with good potential, and prepared an action plan for their advancement in the Company over the next five years.

*Can you give us an update on the Messer integration in South Africa?*

Three years following the acquisition of the Messer activities in South Africa, the outcome is very positive: the organization is running smoothly, teams are motivated, computer systems have been integrated, and industrial and healthcare customers have stayed with us. It has been a successful integration.

*What type of relations do you have with the major South African chemicals manufacturer Sasol?*

For over 25 years, we have enjoyed very close relations with this group, and we have just recently completed construction of its 15<sup>th</sup> oxygen unit. In addition to engineering work, Air Liquide is currently offering on-site services, so that this major customer may focus on its core business.

LISTENING



World Aids

TRUST



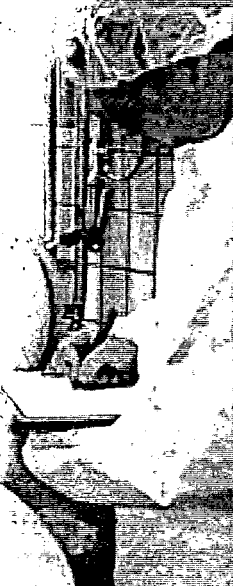
PROTECTING LIFE



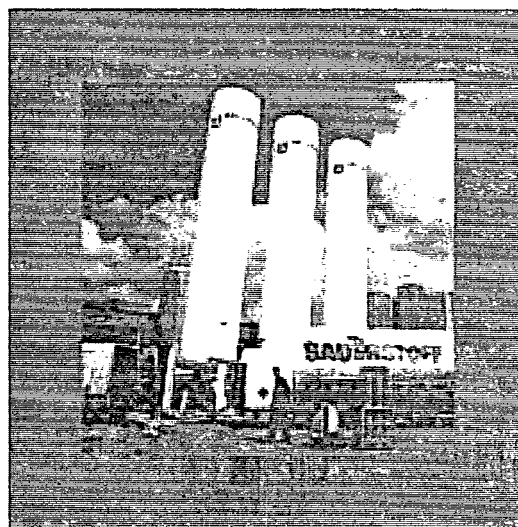
TRAINING



PERFORMANCE



# Management Report



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# Key figures for the Group

The year 2004 marked a return to steadier growth in the Group's key businesses, particularly with rapid development of hydrogen and emerging Asia, and renewed momentum in the markets in the United States, and Healthcare in Europe. This growth was reinforced by the successful acquisition and integration of Messer activities.

In this context, the Group has delivered a further increase in profits for 2004, whilst maintaining margins, thanks to its renewed productivity initiatives.

Furthermore, strong cash flow and a selective approach to investment ensure continued financial strength, with debt levels lower than anticipated and very good return on capital employed.

Overall, 2004 was a milestone year for Air Liquide. In light of this good performance and a favorable outlook, the Management Board is proposing a significant dividend increase.

*In millions of euros*

	2003	2004	2004/03	2004/03 (excl. forex)	2004/03 (excl. forex and excl. Messer)
Total sales	8,394	9,376	+11.7%	+14.5%	+7.1%
<i>of which Gas and Services sales</i>	7,389	8,275	+12.0%	+15.0%	+6.6%
Operating income before depreciation/amortization	2,005	2,191	+9.3%	+12.0%	+6.4%
Operating income	1,196	1,277	+6.8%	+9.2%	+7.1%
Group consolidated net earnings	726	778	+7.1%	+9.6%	+9.4%
Funds from operations (cash flow)	1,542	1,695	+9.9%	+12.6%	
Net earnings per share*** (in euros)	** 6.68	7.20	+7.8%	+10.3%	
Dividend per share (in euros)	** 2.90	3.50	+20.7%		
Return on capital employed after tax (ROCE)	11.6%	11.3%			

\* And excluding natural gas price variation, and impact of consolidation of Asian activities.

\*\* Adjusted to take into account the bonus share issue in June, 2004.

\*\*\* Number of shares outstanding as of December 31, 2004, for net EPS calculation: 107,937,967.

## Sales

**Consolidated sales** for 2004 reached 9,376 million euros, an increase of +11.7% over 2003, including the acquired Messer activities (471 million euros over eight months) for +5.6%.

Excluding foreign exchange, natural gas and the consolidation impact of Messer and subsidiaries in Singapore and Hong Kong, the increase was +7.1%.

## Group results

**Operating income before depreciation and amortization** was 2,191 million euros, an increase of +9.3% and of +12.0% excluding foreign exchange. This result was delivered with margins maintained. Productivity initiatives undertaken with the launch of the OPAL program and pricing action enabled the Group to fully offset increased costs stemming principally from energy and the implementation of new IT systems.

After depreciation and the amortization of the goodwill attributable to the Messer acquisition, operating income amounted to 1,277 million euros, an increase of +9.2%, excluding foreign exchange.

Margins (ratio of operating income to sales) were therefore maintained at 14.1% (excluding natural gas and Messer) compared with 14.2% in 2003.

Following the acquisition of Messer activities, financed entirely by debt, **net financial expenses** stood at 143 million euros versus 106 million euros in 2003. Excluding this acquisition, financial expenses fell significantly (-17%) reflecting lower cost of debt.

The contribution from **companies accounted for by the equity method** was 37 million euros, a decrease of 13 million euros, following the consolidation by the proportional method of SOAEO's subsidiaries in Singapore and Hong Kong in 2004.

**Other expenses** amounted to -63 million euros, compared with -50 million euros in 2003. In particular, these include provisions for restructuring.

Proceeds from divested Messer activities contributed 32 million euros to earnings, including net capital gains from divestments.

The **effective tax rate** decreased to 27.5% from 29.6% in 2003, partly due to ongoing tax optimization efforts, particularly in Europe.

**Minority interests** increased by +14% owing to very good results from Japan Air Gases, which saw the benefits of synergy plans initiated in 2003 achieved a year ahead of schedule.

Overall, **Group consolidated net earnings** was 778 million euros, an increase of +7.1% (+9.6% excluding foreign exchange). As announced, the contribution of Messer activities consolidated since May had a neutral impact on results for the year.

In 2004, the Group bought back 339,743 shares (adjusted for the 2,500 shares issued in June, 2004) amounting to a total of 44.4 million euros, i.e. an average price of 130.60 euros.

### Statement of changes in financial position and balance sheet

**Funds from operations** (cash flow) were 1,695 million euros, an increase of +12.6% excluding foreign exchange. This is in line with operating income growth before depreciation and amortization. In total, funds from operations (cash flow) represent 18% of sales.

**Capital expenditures** amounted to 998 million euros over the year (excluding the Messer acquisition), up compared with 2003 owing to investment decisions for growth made during the past two years. In 2004, the ratio of capital expenditures to sales was 10.6%.

In 2004, the Group's **investment decisions** totaled 1,200 million euros, reflecting numerous commercial successes across all geographic zones and in markets with strong potential.

After increased working capital, share buybacks and conversion impact, **net indebtedness** was 3,790 million euros, representing a decrease of almost 1 billion euros since June, 2004, ahead of the Group's expectations.

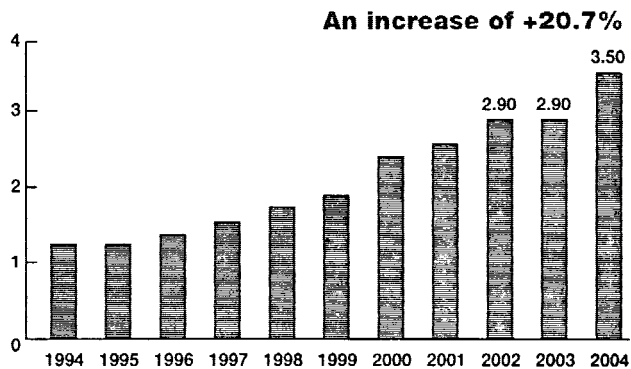
The **ratio of net indebtedness to shareholders' equity** was therefore 66% as of December 31, 2004, a better level than anticipated. Following the Messer acquisition, the Group's financial structure continues to be very strong.

As of December 31, 2004, **return on capital employed after tax (ROCE)** was 11.3% versus 11.6% in 2003. Excluding the acquisition of Messer activities, return on capital employed was 12.2%.

### Dividends

At the General Shareholders' Meeting on May 11, 2005, a **dividend** of 3.50 euros will be proposed to shareholders for fiscal year 2004, amounting to a distribution rate of 50.3% of consolidated net earnings.

### Dividend per share: €3.50\*



(\* 2004 dividend proposed at the General Shareholders' Meeting. Dividends for previous years are adjusted to take into account bonus share issues.

### Average annual growth over ten years

Dividend per share: +11%

Total shareholder return: +11%

### At year-end 2004

Distribution rate: 50%

Share yield: 2.6%

### Total shareholder return of an investment in Air Liquide shares

Total shareholder return (TSR) is an annualized rate of return for shareholders who purchased a share at the beginning of the period and sold it at the end of the period.

TSR calculation factors in the change in share price and dividends paid (including tax credit), assuming they are reinvested in shares right away.

This return is a percentage equal to the share yield (dividend/share price) added to the capital gains rate (capital gains over the period/initial share price).

For L'Air Liquide S.A., net earnings before exceptional items reached 384 million euros, compared with 328 million euros in 2003.

# Acquisition of Messer activities in Germany, the United Kingdom and the United States

Announced on January 20, 2004, the acquisition of Messer activities in Germany, the United Kingdom and the United States was finalized on December 3, within a short time frame of 11 months, including approvals from the competition authorities and the realized divestments.

This acquisition is consistent with the Group's strategy to strengthen its position in industrial gas activities through both organic and external growth, and through targeted and profitable opportunities.

Current customers of acquired Messer activities in the countries concerned will benefit from Air Liquide's global network and expertise in technological innovation through an enlarged offer of products and services.

This acquisition also allows Air Liquide to strengthen its position in several key markets:

- In **Germany**: the acquired Messer activities give Air Liquide a broader and more solid base. These activities (sales of approximately 455 million euros) benefit from a strong and well-established presence in Germany's industrial basins, particularly in the Ruhr and Rhine areas. Its business is very complementary to Air Liquide's existing activities, which are strong in the eastern and northern parts of Germany. Air Liquide thus gains access to a solid, balanced portfolio of customers in a broad range of sectors.
- In the **United Kingdom**: Messer's focused activities (sales of approximately 70 million euros) make it an important player in the British bulk carbon dioxide market. They complement the Group's existing expertise in the food and beverage industry, one of the key growth sectors for Air Liquide.
- In the **United States**: a major distributor of liquid gas, Messer (sales of approximately 255 million euros) was established mainly in the North and East, an industrial region that accounts for more than 50% of industrial production in the United States. This geographic presence complements Air Liquide's existing activities – located mainly in the western and southern regions of the United States – enabling the new entity to strengthen its position as a national player and broaden its ability to benefit its customers.

## Integration and teams

Beyond the quality of the teams and the acquired assets, Messer's overall expertise is very complementary to the Group's.

The Management teams of the new entity were designated on the basis of their respective skills.

Klaus Schmieder, former Chairman of the Management Board of Messer, has joined the Air Liquide Group as Executive Vice-President and member of the Management Board. He is responsible for overseeing and coordinating Gas and Services operations in Europe, excluding Large Industries and Healthcare.

The operational integration of acquired activities has made significant progress thanks to the work of teams put in place as early as March, 2004.

## Key figures

*In millions of euros*

	Acquired sales*	Sales after required divestments*
Germany	660	455
United States	310	255
United Kingdom	70	70
<b>Total</b>	<b>1,040</b>	<b>780</b>
Initial acquisition amount including acquisition costs		2,736
Final amount after divestments		2,037
Synergies		100

\* On the basis of estimated sales figures for 2003, calculated using 2003 exchange rates, over 12 months.

### **Calendar of the acquisition of Messer activities**

■ **January 20:** proposed acquisition of Messer activities announced

■ **March 15:** the European Commission approves the proposed acquisition subject to divestments

■ **April 29:** the Federal Trade Commission (FTC), the U.S. competition authority, approves the proposed acquisition of Messer, subject to the divestment of some acquired liquid gas units

■ **May 6:** closing of the acquisition

The Group concludes its acquisition following the finalization of financing by the Messer family for the retained businesses.

■ **June 29:** sale of Messer activities to be divested in the United States

The Group signs an agreement with Matheson Tri-Gas, Inc. (a subsidiary of Nippon Sanso) for the sale of liquid gas activities to be divested in the United States in compliance with the Consent Order signed on April 29, 2004, between Air Liquide and the FTC, to meet antitrust requirements. The activities divested represent around 60 million dollars in sales for a sale price of 155 million dollars. Included in the results for 2004, divestments were realized on the basis of a sales multiple approximately equal to the acquisition price multiple.

■ **September 21:** Air Liquide signs an agreement with Tyczka for the sale of carbon dioxide activities to be divested in Germany

Air Liquide signs an agreement with the German company Tyczka, a leading player in the European liquefied petroleum gas (LPG) market. This divestment represents sales of 10 million euros in 2003. The transaction is based on a sales multiple slightly higher than the acquisition price multiple.

■ **October 7:** Air Liquide signs an agreement with Praxair for the sale of Large Industries, bulk and cylinder activities to be divested in Germany

The agreement, pending approval of German competition authorities, amounts to sales of about 180 million euros in 2003.

In total, the combined proceeds in Germany amount to 530 million euros (including the sale of carbon dioxide activities to Tyczka). This was achieved on the basis of a sales multiple higher than the total acquisition price multiple.

■ **November 2:** completion of the divestment of activities to Matheson Tri-Gas, Inc. in the United States with the final approval of the Federal Trade Commission

■ **November 4:** completion of the sale of carbon dioxide activities to be divested in Germany with the final approval of the European Commission

■ **November 24:** Air Liquide signs an agreement to sell its interest in MNS to Taiyo Nippon Sanso

Air Liquide signs an agreement to sell its 51% interest in MNS Nippon Sanso to a newly established subsidiary of Nippon Sanso Corporation.

■ **December 3:** completion of the acquisition of Messer activities

Air Liquide finalizes the acquisition of Messer activities with the final approval from European and German competition authorities for the sale to Praxair of certain activities in Large Industries, bulk and cylinder gas to be divested in Germany.

After the required divestments, the total net investment is 2 billion euros for acquired sales of around 780 million euros, in line with the Group's original estimates.

In addition, on October 29, 2004, Air Liquide announced the sale of its 90% interest in GT&S, an entity specialized in cylinder gases and a Messer subsidiary in the United States. This transaction was undertaken for strategic reasons and is in addition to the divestments required by U.S. competition authorities. The interest in GT&S has been purchased by an entity controlled by the previous minority owner of GT&S, for an amount close to 2003 annual sales, or approximately 80 million dollars.

## Financing of the acquisition

This acquisition, which represented an initial investment of 2.7 billion euros, was financed by external debt. Initially (in May, 2004), the acquisition was financed by issuing commercial paper in euros and by short-term bank debt in US dollars. This debt was entirely secured with confirmed back-up lines of credit negotiated specifically for this transaction. Thus, Air Liquide benefited from low-cost financing without any liquidity risk. This initial financing gave the Group a wide degree of flexibility as it awaited proceeds from the divestment of assets previously agreed to. As a second step, Air Liquide refinanced part of this short-term debt by long-term sources in the bond market and bank financing for a total of 1,420 million euros. At the end of June, 2004, L'Air Liquide S.A. carried out two bond issues under its EMTN program (500 million euros maturing in 2010 and 500 million euros maturing in 2014). L'Air Liquide S.A. also issued a private placement of 130 million euros maturing in 2012, and its subsidiary American Air Liquide issued private placements in the United States for 400 million US dollars (three tranches maturing in 2009, 2011 and 2012).

The divestments in the second half of 2004 reduced the short-term commercial paper outstanding and the bank debt in the United States, by around 700 million euros. In parallel, the long-term lines of credit were reduced at the end of the year in proportion to lower short-term financing following the long-term refinancing and proceeds from divestments. The overall impact of this acquisition on the Group's net indebtedness, after taking into account divestments, acquisition costs and financial charges, is around 2 billion euros, of which 72% are financed by long-term debt, and 28% by commercial paper secured with long-term lines of credit.

Following this acquisition, Air Liquide retains a quality credit rating. In May, 2004, Standard and Poor's, the credit rating agency, gave Air Liquide a long-term rating of "A+/negative outlook" and a short-term rating of "A1". Moody's attributed a short-term rating of "P1".

## Cost of the acquisition debt and hedging of the interest rate risk

A favorable financing environment with low interest rates, as well as its rating, helped Air Liquide to finance the acquisition at a competitive rate of around 3.3% over 2004. In order to maintain this financing rate over the long term, Air Liquide kept a part of the euro long-term financing at fixed rate, and took advantage of the historically low short-term rates (2% in 2004) on the short-term portion of the debt. Anticipating the rise in short-term US dollar rates towards the end of 2004, and which continues in 2005, Air Liquide protected itself by taking medium and long-term hedges on its debt denominated in US dollars.

## Impact on the financial statements

In the 2004 financial statements, Messer activities were consolidated for eight months from May 7, 2004, onwards.

Contribution to consolidated sales from retained activities amounts to 471 million euros.

The impact on the balance sheet includes indebtedness due to the acquisition, re-evaluated net assets and the resulting goodwill.

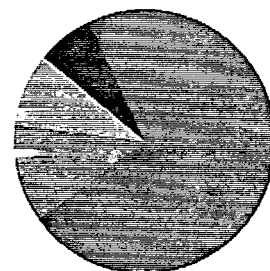
The operation is accretive, before amortization of goodwill from the first year of consolidation.

*In millions of euros*

	Messer's contribution in 2004
Sales	471
Operating income before depreciation/amortization	112
Amortization/depreciation	(86)
<i>including amortization of goodwill</i>	<i>(25)</i>
Operating income	26

## Synergies

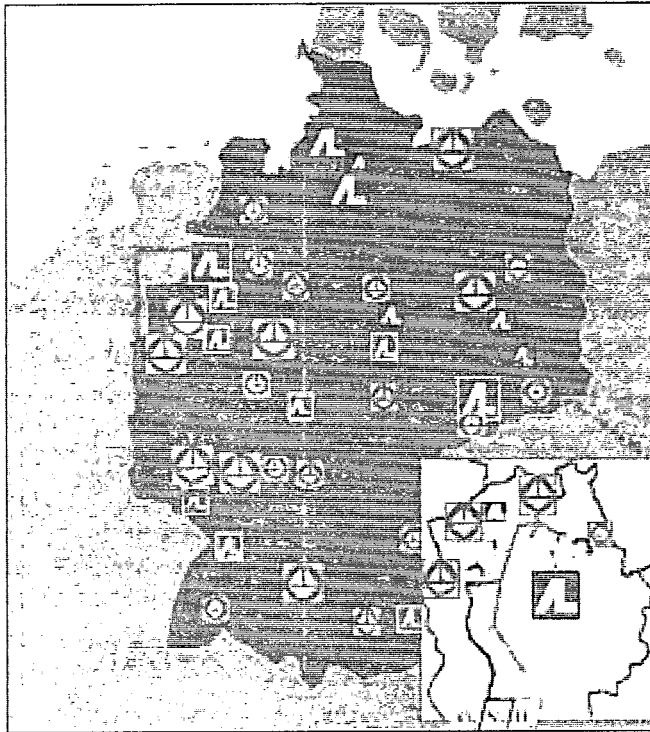
### The distribution of €100 M of synergies



■ General & Administration	□ 65%
■ Industrial efficiency	□ 12%
■ Logistics	□ 9%
■ Purchasing	□ 7%
■ Volumes	□ 7%

Synergies following the integration of Messer activities will amount to 100 million euros over three years. The Group figures that 50% of synergies will be achieved in 2005.

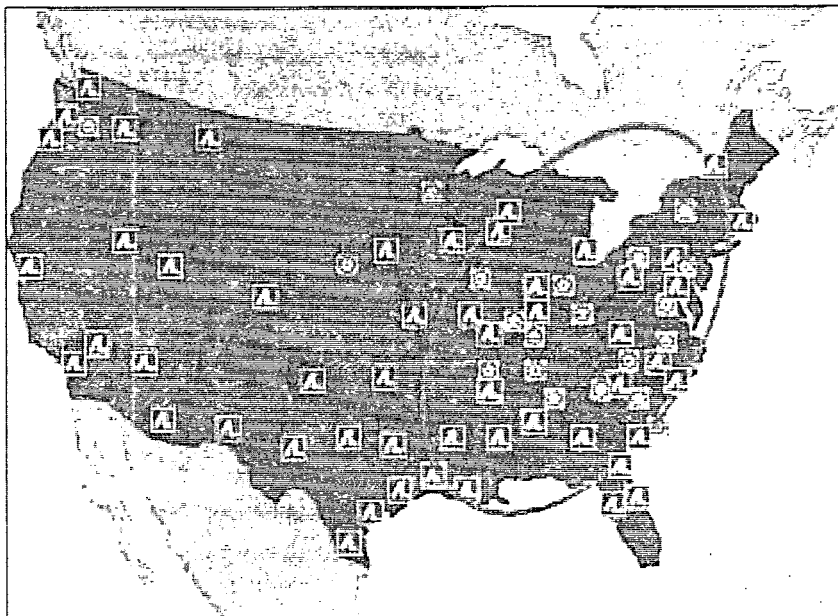
**Germany: n° 2 in the first European economy**  
**Sales in 2004 pro forma for a full year: €900 M**



**United Kingdom: a targeted presence**  
**Sales in 2004 pro forma for a full year: €70 M**



**United States: n° 3 close to the n° 2**  
**Sales in 2004 pro forma for a full year: €1,600 M**



Air Liquide activities



Retained Messer activities

# Activities and investments

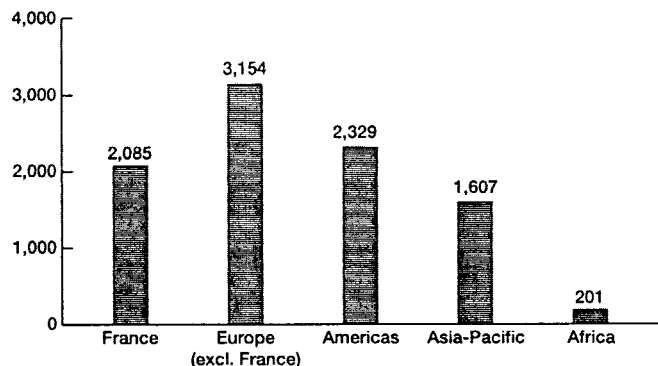
The year 2004 was very significant for Air Liquide, due to the acquisition and successful integration of Messer activities which enhances the Group's core business in Europe and the United States, and the delivery of accelerated growth which confirms the Group's strategy.

As a result, the Group has recorded strong consolidated sales growth for the year. Hydrogen activities have developed strongly and both homecare and service businesses have confirmed their ability to deliver sustainable growth. In 2004, Air Liquide grew in all markets in Europe, the United States, and Asia, and particularly in China, demonstrating the Group's new momentum.

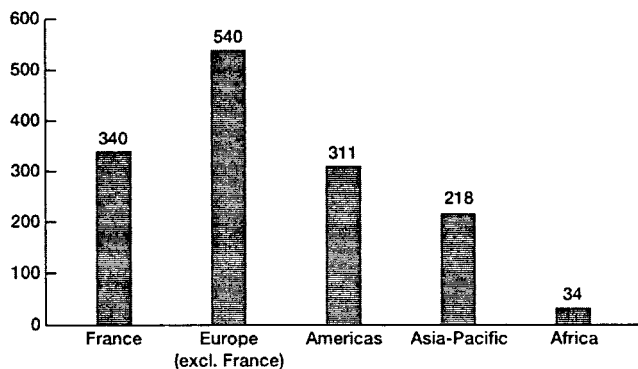
In 2005, these positive trends should continue with the further development of the growth drivers and the Group's geographic expansion.

## Analysis by geographic zone

### Sales by geographic zone (in millions of euros)



### Operating income by geographic zone <sup>(1)</sup> (in millions of euros)



(1) Excluding research centers and corporate overheads (-166 million euros).

## Europe

Air Liquide's activities in Europe achieved significant growth, despite a weaker economic environment. This is the result of the Group's strategy of developing new markets: hydrogen, healthcare and services. The integration of Messer in Germany is progressing favorably, with a new organizational structure fully in place since January 1, 2005.

In Large Industries, hydrogen capacity was tripled, with the start-up of units in France, Spain and Belgium. Products and services in Healthcare are recording sustained growth. Industrial Customers are benefiting from the integration of enlarged offer and services.

The continued ramp-up of large contracts and the Group's developments in its Healthcare businesses ensure good prospects for 2005.

In a moderate economic environment, operating income in Europe (including France) increased. This growth was linked in particular to good results in Northern Europe, in Large Industries and Healthcare.

## Americas

The Americas performed well with high utilization rates of the Group's capacity and new developments sustaining its future performance.

In North America, Industrial Customers registered a significant increase in liquid volumes, benefiting from higher demand due to the favorable economic environment in most markets. Activity in Large Industries was sustained throughout the year and a very large 100,000 m<sup>3</sup>/hour hydrogen unit was started up in the fourth quarter in California, a new basin for Air Liquide. Important contracts won in 2004 in hydrogen and Electronics and the integration of Messer will enable the Group to sustain its momentum in the American continent over the next two years.

Growth in operating income was very sustained, with a significant increase in margins, driven in particular by volumes in the United States and productivity initiatives.

## Asia-Pacific

2004 was a strong year for the Asia-Pacific zone and all businesses are growing. The ramp-up of large contracts, notably in South Korea, and the dynamic semi-conductor market (particularly for flat screens) underpinned this performance. In Japan, activity was stronger at the end of the year thanks notably to Electronics and a better fourth quarter in Industrial Customers. Best performances were seen in other Asian countries, with very significant growth in China and South Korea.

The outlook for the Group's activities in the zone remains very favorable, with the start-up of large contracts and recent investments in Electronics and Large Industries which increased significantly, in line with the Group's strategy.

In Asia-Pacific, operating income recorded very strong growth linked to rising volumes in emerging Asia and the completion of synergies from Japan Air Gases

## Africa

In 2004, Air Liquide recorded a satisfactory growth in sales and higher margins. South Africa and Egypt, recently included within the Group's perimeter, performed best in terms of activities and return.

### Capital intensity

Capital intensity is the amount of capital needed to generate one euro in sales. This capital is either invested into industrial assets (production unit, storage, truck, etc.), or used as working capital to finance the development of the activities.

Capital intensity in the Group's business lines varies:

- air gases production in Large Industries is very capital intensive with a capital intensity between 2 and 3;
- hydrogen or cogeneration services currently have a capital intensity close to 1, given the high price of natural gas in particular;
- Electronics, Healthcare, and value-added services, all major development drivers, also have a capital intensity around or below 1 depending on product mix.

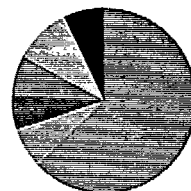
Whatever the capital intensity, Air Liquide's objective is to achieve, over the long term, return on capital employed after tax of at least 12% (ROCE).

## Gas and Services (excluding Messer)

### Industrial Customers

*In millions of euros*

2004 Sales	3,834
Capital intensity	1.5 to 2



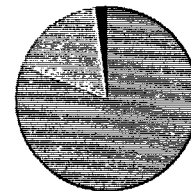
■ Liquid gasses	36%
■ Cylinder gasses	27%
■ On-site	7%
■ Services	6%
■ Pure and mixed gasses	7%
■ Equipment and installations	10%
■ Other	7%

### Large Industries

*In millions of euros*

2004 Sales	2,261
Capital intensity*	1.5 to 2.5

(\*) At 2004 average natural gas price.

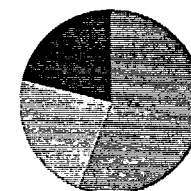


■ Air gases	59%
■ H <sub>2</sub> /CO	22%
■ Cogeneration	17%
■ Other	2%

### Electronics

*In millions of euros*

2004 Sales	884
Capital intensity	1 to 1.2

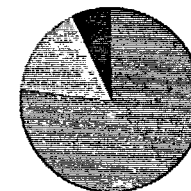


■ Carrier gases □	29%
■ Specialty gases □	27%
■ Services and liquid chemicals □	23%
■ Equipment and installations □	21%

### Healthcare

*In millions of euros*

2004 Sales	1,296
Capital intensity	0.8 to 1.2



■ Homecare	39%
■ Hospital	38%
■ Hygiene	16%
■ Equipment	7%

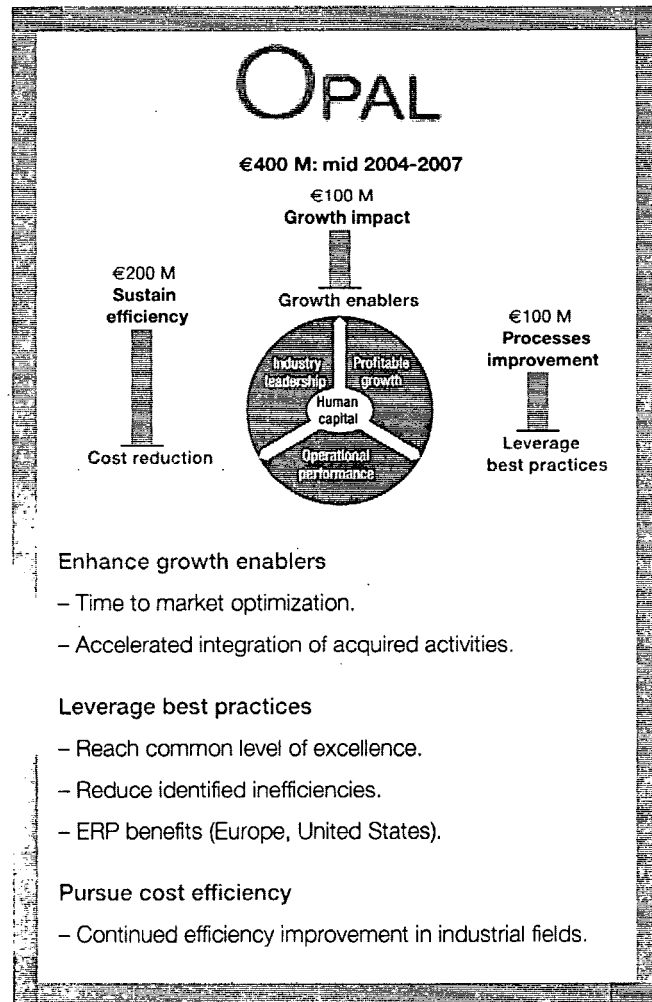


## New productivity program

In 2004, Air Liquide launched a three-year action plan to strengthen sales growth and improve operating income.

The program is based on three key goals: accelerating time to market for the Group's products and services, leveraging best practices, and constantly improving efficiency.

This program should generate approximately 400 million euros in improved performance throughout all Group activities by 2007.



## Competition

Air Liquide's main competitors in industrial and medical gases are the American groups Praxair and Air Products, the British group BOC, the German group Linde and two smaller groups: Taiyo Nissan (Japan) and Airgas (United States).

In December, 2004, Air Liquide completed the acquisition of the Messer activities in Germany, the United Kingdom, and the United States with the approval of competition authorities in Europe and the United States.

Before and after this acquisition, Air Liquide is the world leader in industrial and medical gases.

## Delivering growth strategy

The Group's strategy is firmly focused on growth:

- Air Liquide's strategy in the industrial gas sector is **unique** as it combines **balance of activities, geographic presence, and resource mix**. This strategy leads to targeted investments equal to 11% to 13% of sales;
- Earnings each year result from the combination of **growth in sales and continuous gains in productivity** within the Group;
- **Financial discipline** is driven by **ambitious goals**: the return on capital employed after tax (ROCE) should in permanence attain or exceed 12%; the ratio of net indebtedness to shareholders' equity remains between 35% to 50%;
- Delivering **sustained, long-term shareholder returns** is a **priority**. The total shareholder return (TSR) rate in the last ten years has been over 11%.

## 2005 Outlook

Following 2004, which marked an important stage in Air Liquide's development, the Group's financial strength is maintained and 2005 has begun in a positive trend, due to:

- Focus on **profitable growth in emerging economies**;
- **Development** of the Group's key **growth drivers**: hydrogen, Asia, Electronics, homecare and hygiene in Europe;
- Integration of Messer activities within a **new European framework**;
- Achievement of **50% of anticipated Messer synergies** in 2005.

Air Liquide's business successes over the past three years and dynamic growth drivers position the Group to target, once again, a growth rate in net earnings in 2005 at least comparable to that published in 2004.

## Investments decisions and capital expenditures

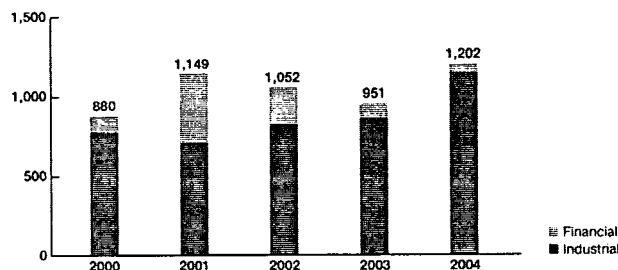
Investment decisions have always been a key element of the Group's strategy as they:

- develop the business through both internal and external growth,
- improve efficiency and quality, and
- ensure safety and reliability.

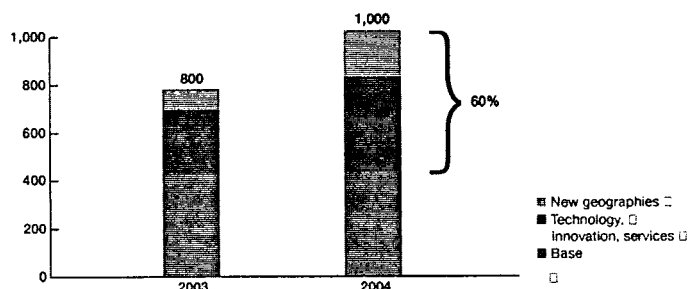
The economic objective of these investments is to facilitate sustainable growth by improving the returns on capital employed. The required level of the internal profitability may vary with the overall assessment of the risks associated with the investment. Investments in long-term contracts, for instance, generate weaker levels of profitability in the first few years, because the customer's needs increase gradually, while the contract bears the depreciation (linear over the life of the contract) and financial expenses over the same period. Profitability levels increase rapidly thereafter.

The Group's decision to enlarge its offer resulted in a number of commercial successes between 1995 and 1997, which in turn led to accelerated investment decisions. During this period, the Group committed approximately 3.5 billion euros to industrial investments, two-thirds of which were linked to long-term contracts. This was three times the investments made between 1992 and 1994. These decisions resulted in 68 large units between 1997 and 2000 and generated significant capital expenditures until 1999. Following this development period, Air Liquide has continued, over the past four years, to invest at a rate of approximately 1 billion euros a year. Today, the Group has over 250 units on the five continents.

### Investment decisions (in millions of euros) (excluding Messer)



### Gas & Services investment decisions (excluding Messer) (in millions of euros)



In 2004, investment decisions amounted to 1,202 million euros (excluding the acquisition of Messer's activities in Germany, the United Kingdom and the United States), a +15% increase over the average of the last three years. This increase resulted from new contracts secured during the year. Emerging geographies accounted for 200 million euros of the Group's total investment decisions, while growth markets, such as hydrogen, energy, Electronics and Healthcare accounted for 400 million euros. These strategic development drivers accounted for 60% of the Group's industrial investments.

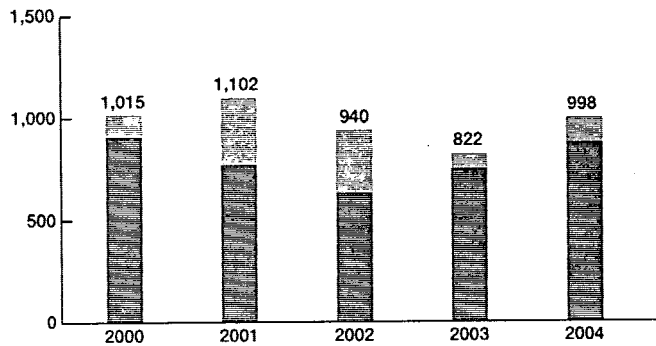
Three significant successes were achieved in China where the Group will supply air gases on a long-term basis to two major steel makers in the Shandong area, as well as to a flat screen producer based in Beijing. In hydrogen, Air Liquide secured a major contract in Bayport, Texas, and therefore strengthened its position at the heart of Houston's refinery basin.

These investment decisions are subject to a careful evaluation process, undertaken at Group level by the Investment and Operations Committee chaired by a member of the Management Board together with directors of relevant zones and activities.

Decisions are based on rigorous individual assessments of projects, using five main criteria:

- **The location of the contract:** the analysis will differ whether the project is based in an industrial basin with high potential (Corpus Christi in the United States, Antwerp in Belgium, Caojing in China), or connected to an existing pipeline network, or else found in an isolated location;
- **The nature of the product provided:** the analysis of risks and expected profitability will vary in the case of air gases, relying on the Group's traditional technologies, or new products such as hydrogen and synthetic gas, which occasionally rely on more innovative technologies;
- **Customer risk:** this is measured according to whether the customer is local or global, and takes into account the customer's market and stability;
- **Competitiveness of the site or gas-dependent activity:** this is assessed based on size, the cost of raw materials and access to markets;
- Finally, **country risk** is studied carefully.

**Capital expenditures (in millions of euros)  
(excluding Messer)**



■ Financial  
■ Industrial

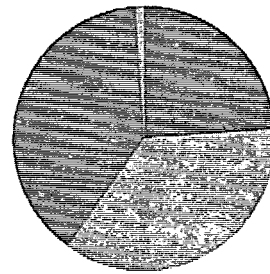
In 2004, **industrial capital expenditures** reached 875 million euros compared with 747 million euros in 2003. This increase reflects the ramp-up in investment decisions between 2002 and 2004 in Air Liquide's growth markets (notably hydrogen and emerging Asia). By geographic zones, Europe excluding France accounted for 39% of these investments, France 22%, the Americas 21%, Asia 17% and Africa 1%.

**Financial capital expenditures** totaled 2,859 million euros including the acquisition of the Messer activities in three countries during the year. Excluding this acquisition, expenditures amounted to 123 million euros compared with 75 million euros in 2003. For the most part, these expenditures were linked to the buyback of minority interests in the United States and in Asia, as well as the acquisition of Livingston, a major player in the field of metrology, which has strengthened the services pole in Europe.

In total, the ratio of capital expenditures (excluding the financial investment tied to the Messer acquisition) to Group total sales was 10.6% in 2004 compared with 9.8% in 2003.

In 1999, with the gradual increase in sales generated through large projects and the Group's policy of selective investments, the Group's return on capital employed (ROCE) has increased notably. In 2004, return on capital employed after tax was 12.2% (excluding Messer) compared with 11.6% in 2003. Including the acquisition of Messer, return on capital employed was 11.3%, a good performance given the size of this strategic transaction.

**Capital expenditures by geographic zone  
(excluding Messer)**



■ France	24%
■ Europe (excl. France)	36%
■ Americas	22%
■ Asia-Pacific	17%
■ Africa	1%

**The lifespan of a long-term contract**

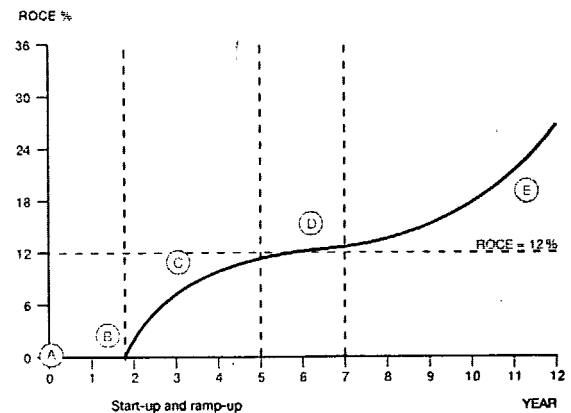
Stage A: an investment decision follows the signing of a long-term contract.

Stage B: capital expenditures begin as Air Liquide builds the unit for the customer(s) over 18-24 months.

Stage C: the unit starts up and gas production increases progressively. Sales begin and will continue over the course of the contract term.

Stage D: between years five and seven, the contract reaches an average return on capital employed (ROCE) of 12%, in line with Group objectives.

Stage E: after 15 years, aside from maintenance expenses and renewed investment, the unit is mostly depreciated. At this point, the return on capital employed grows significantly.



# Financial policy

## Financial risk management

Risk management is a priority for the Group. As for financial risk management, Air Liquide has set up a Finance Committee that includes members of the Management Board, the Finance Director, and representatives from the Finance Department. The Committee's role is to establish financial, treasury and financing risk policies and monitor their implementation. The Finance Committee reports to the Audit and Accounts Committee of the Supervisory Board.

The Finance Department manages the main financial risks centrally, based on the decisions of the Finance Committee, to which it reports quarterly. The Finance Department also performs the analysis of country and customer risks and provides input on these risks at Investment and Operations Committee meetings.

## Foreign exchange risk

In the industrial gas industry, most products are not exported but are produced in the country where they are invoiced. There is thus little risk of currency fluctuations affecting the Group's competitiveness. Foreign currency variations only affect operating income when financial statements are translated into euros. The effect of the two main foreign currencies – US dollars (USD) and yen (JPY) – is as follows:

Impact of variation of +/- 1% in foreign exchange rate:

*In millions of euros*

	Sales	% Group	Operating income	% Group
USD	19.7	0.21	2.3	0.18
JPY	9.7	0.10	1.0	0.08

The geographic distribution of operating income by currency is as follows:

	2003	2004
Euro zone	54%	51%
US and Canadian dollar zones	23%	24%
Yen zone	8%	8%
Other	15%	17%

Transactions involving patent royalties, technical support and dividends require the exchange of foreign currency between Group companies. The related exchange risk is handled as part of the Finance Department's hedging policy.

In Engineering and Construction, the Group hedges transactions on a case-by-case basis. The instruments used are mainly currency forwards or options with first-grade counterparties. The breakdown of the hedging portfolio by currency and instrument is shown on page 96.

The Group raises debt in the currency of the cash flows. This provides a natural hedge and reduces the Group's exposure to exchange rate variations. In countries outside the euro, US dollar and yen zones, financing is raised in either local or foreign currency (EUR or USD) when contracts are indexed in euros or US dollars – which is often the case for Large Industries projects.

As part of intra-group multi-currency financing, the Central Treasury Department converts the debt raised in financial markets into various currencies to refinance subsidiaries in their functional currencies. The breakdown of this hedging portfolio is shown on page 96.

The following table shows the impact of foreign exchange swaps on Group net indebtedness as of December 31, 2004:

*In millions of euros*

	Gross debt before hedging	Short-term loans, market securities and cash	Hedging (foreign exchange swap contracts)	Net indebtedness adjusted after hedging	Fixed assets
EUR	3,671	(544)	(409)	2,718	5,657
USD	522	(64)	300	758	2,098
JPY	177	(12)	58	223	548
CAD (1)	8	(9)	96	95	380
Other currencies	197	(156)	(45)	(4)	1,552
<b>Total</b>	<b>4,575</b>	<b>(785)</b>	<b>0</b>	<b>3,790</b>	<b>10,235</b>

(1) Canadian dollar.

A portion of the euro debt raised on the markets (409 million euros) was converted to other currencies to refinance foreign subsidiaries. For instance, of the Group's US dollar gross debt of 822 million (758 million of net indebtedness plus 64 million of excess cash), 522 million euros were raised directly in US dollars and 300 million euros were raised in euros and converted to US dollars using foreign exchange swap contracts.

## Interest rate risk

### Principles

Air Liquide interest rate risk management on its main currencies - euro, US dollar, Canadian dollar and yen - is centralized. These currencies represent approximately 97% of total gross debt. For other currencies, the Finance Department advises the subsidiaries on hedging their foreign currency exposure in accordance with the local financial market regulations. The Finance Committee determines the fixed rate/floating rate ratio for each currency and approves the hedging instruments used.

The Group's objective is to reduce the impact of interest rate fluctuations on its financial expenses and earnings and, by adopting a principle of prudence, to provide backing for long-term fixed assets with shareholders' equity and fixed-rate long-term debt. Since most of Air Liquide's activities are based on long-term contracts (10 to 15 years), a policy promoting interest rate hedging (fixed rates and options) provides good visibility on the financing cost when deciding long-term investments.

### Sensitivity to interest rate fluctuations

The Group's net indebtedness exposed to interest rate fluctuations amounted to 1,650 million euros as of December 31, 2004 (39% of the gross debt adjusted for short-term securities), compared with 870 million euros at year-end 2003 (41% of the debt).

The increase in the amount of net indebtedness exposed to interest rate fluctuations is due to the acquisition of Messer activities in Germany, the United Kingdom and the United States. Given the Group's policy to hedge interest rate risks, the proportion of the debt exposed to rate interest fluctuations is stable at around 40%.

An increase or decrease in interest rates of 100 bp (+ or -1%) on all yield curves would have an impact of about + or -16.5 million euros on the Group's annual financial charges before tax, assuming outstanding debt remains constant.

Also, the Group contracted optional interest rate hedges (caps), triggered if interest rates increase significantly (above 3.90% for EUR and 3.80% for USD). If those hedges are triggered, assuming constant outstanding debt, consolidated net indebtedness exposed to interest rate fluctuations would drop by about 1,000 million euros to 650 million euros. Sensitivity of financial charges would then be reduced to 6.5 million euros.

The Group does not hold derivatives for trading purposes. All hedging instruments used to manage interest rate or foreign exchange risk relate to identified risks.

## Counterparty risk

Potential counterparty risks for Air Liquide include:

- Customers;
- Bank counterparties.

The Group has more than one million customers in a broad range of industries, dispersed over an extensive geographic area, thus precluding any concentration of customer credit risk. As an illustration, the sales to Air Liquide's top ten customers represent less than 15% of total sales.

To better assess its exposure, the Group has adopted procedures to regularly monitor the financial position of its major customers and analyze outstanding balances.

Moreover, customer risk assessment is an important component in the investment decision process, and the Audit and Accounts Committee is regularly updated on this subject.

Bank counterparty risk relates to the outstanding amounts of derivatives and to outstanding lines of credit contracted with each bank. Based on its financial policy, the Group requires a long-term Standard & Poor's "A" rating or a Moody's "A2" rating from its counterparties. The Group's lines of credit are also spread among several banks to avoid risk of concentration. The Finance Committee regularly checks and approves the list of financial instruments and banks.

## Funding

### Funding policy

All funding decisions are subject to the Group's financial policy, which is implemented and supervised by the Finance Department.

The Finance Committee determines the annual and multi-year goals of the funding policy for all subsidiaries and monitors its application.

To better identify its funding activities, Air Liquide has established a French subsidiary, Air Liquide Finance, that manages most of the Group's interest rate and foreign exchange risks, and funding transactions.

Air Liquide has access to various financing sources in many markets and can therefore optimize financial expenses by choosing the financing best suited to its needs while focusing on liquidity. Air Liquide relies on short-term commercial paper, in France through a French Commercial Paper program to a maximum of 3 billion euros, and in the United States through a US Commercial Paper program (USCP) to a maximum of 1.5 billion US dollars. In line with the Group's internal policy, outstanding commercial paper issuances are backed up with confirmed lines of credit.

In addition, Air Liquide can issue bonds through its long-term Euro Medium Term Note (EMTN) program to a maximum of 3 billion euros. Outstanding notes under the EMTN program amount to 1.8 billion euros, of which 1 billion euros were issued in 2004 to finance the Messer acquisition. In addition, the Group raises bank debt (loans and bilateral lines of credit) and private placements. The average maturity of debt is five years.

### Breakdown of debt

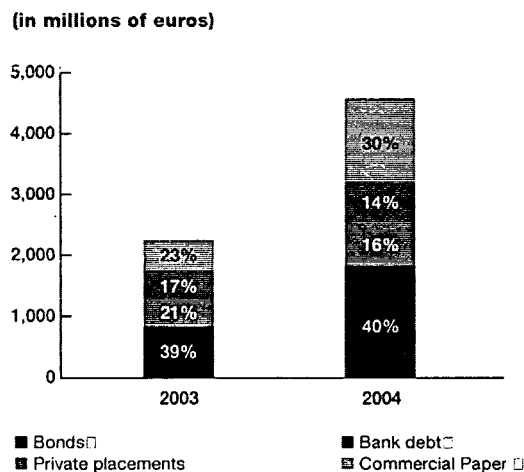
As per the Group's policy of diversifying sources of financing, the debt is spread over several types of instruments (capital and bank debt markets). The first source of financing is long-term bonds under the EMTN format, which represents 40% of the debt.

In 2004, the main long-term financing transactions involved the acquisition of Messer activities:

- 1 billion euros in EMTN on the Eurobond market (in two tranches of 500 million euros maturing in 2010 and 2014);
- 400 million US dollars in private placements issued by American Air Liquide, a fully-owned subsidiary of the Group (three tranches maturing in 2009, 2011 and 2012);
- 130 million euros in private placement maturing in 2012.

In addition, the Japanese subsidiary JAG contracted a five-year credit line of 20 billion JPY (about 140 million euros).

### Gross debt distribution by instrument type



In millions of euros

Net indebtedness	Currency of issue	12/31/03	12/31/04
<b>Total bonds</b>		<b>838</b>	<b>1,839</b>
Bonds 2005-2009	EUR	38	39
EMTN at 5% - 2007	EUR	200	200
EMTN at 4.125% - 2010	EUR	0	500
EMTN at 5.25% - 2011	EUR	300	300
EMTN at 4.125% - 2013	EUR	300	300
EMTN at 4.75% - 2014	EUR	0	500
<b>Total private placements</b>		<b>453</b>	<b>746</b>
Private placements - 2008	EUR	50	50
Private placements - 2009	EUR	120	120
Private placements - 2012	EUR	0	130
Private placements - 2004	USD	103	0
Private placements - 2007	USD	135	135
Private placements - 2009	USD	0	147
Private placements - 2011	USD	0	73
Private placements - 2012	USD	0	73
Other private placements	USD	45	18
<b>Commercial paper programs</b>		<b>488</b>	<b>1,379</b>
<b>Bank debt</b>		<b>389</b>	<b>611</b>
<b>Total gross debt</b>		<b>2,168</b>	<b>4,575</b>
Short-term loans, marketable securities and cash		(438)	(785)
<b>Total net indebtedness</b>		<b>1,730</b>	<b>3,790</b>

As indicated in Note (D) to the consolidated financial statements, total debt accounted pro rata of the equity interest held by Air Liquide in companies consolidated by the equity method as of December 31, 2004, and related to the normal course of the business is 17 million euros - including 8 million euros of non-recourse project financing debt. Furthermore, the non-recourse factoring of receivables represents 74 million euros. These elements do not constitute risk or financial liabilities for the Group.

Following the acquisition of Messer activities, Air Liquide retains a strong credit rating. In May, 2004, Standard and Poor's, the credit rating agency, gave a long-term rating of "A+/negative outlook" and a short-term rating of "A1". Moody's attributed a short-term rating of "P1".

## Net indebtedness by currency

Air Liquide's debt is mainly in EUR and USD (approximately 92%). In 2004, the portion of EUR debt increased, from 56% to 72%, due mainly to the financing of the acquisition Messer activities. The outstanding USD and JPY debt increased in absolute value, but to a lesser extent. The increase in USD debt is due to the financing of Messer activities in the United States and to debt not previously consolidated. The increase in JPY debt is due to the financing of an exceptional dividend from the JAG subsidiary.

In millions of euros

	2003		2004	
	Stock	%	Stock	%
EUR	980	56%	2,718	72%
USD	531	31%	758	20%
JPY	133	8%	223	6%
CAD	84	5%	95	2%
Other	2	0%	(4)	0%
<b>Total</b>	<b>1,730</b>	<b>100%</b>	<b>3,790</b>	<b>100%</b>

## Variation of net indebtedness

As of December 31, 2004, net indebtedness was 3,790 million euros (1,730 million euros in 2003), an increase of 2,060 million euros due mainly to exceptional items: the impact of the Messer activities (1,988 million euros), the end of the securitization program in the United States and in Canada partially offset by the increase of other programs (net amount of 91 million euros), and the change in the consolidation perimeter (63 million euros). The impact of changes in currency on net indebtedness, slightly positive at 57 million euros, is due to a nearly 8% drop in the value of the US dollar.

In millions of euros

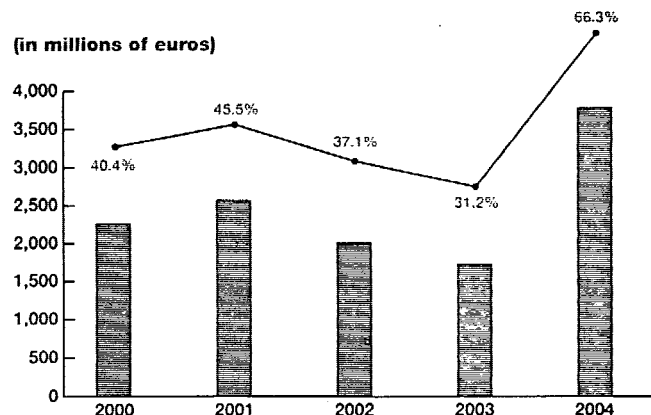
Net indebtedness as of 12/31/2003		1,730
Funds from operations after investments, change in working capital and others	(533)	
Distribution of dividends	489	
Foreign exchange impact	(57)	
Purchase of treasury shares (net of capital increase)	31	
Impact of Messer	1,988	
Change in the consolidation perimeter and securitization program	166	
<b>Net indebtedness as of 12/31/2004</b>	<b>3,790</b>	

For details on the Statement of changes in financial position, see page 120.

## Debt ratio

The net indebtedness to shareholders' equity ratio was 66.3% in 2004 (excluding the acquisition of Messer activities, this ratio would have been 31.4%), compared with 31.2% in 2003. The equivalent debt ratio calculated using the U.S. method: net indebtedness/(net indebtedness + shareholders' equity) reached 39.9% in 2004, compared with 23.8% in 2003.

(in millions of euros)



■ Net indebtedness as of December 31  
 ◆ Net indebtedness to shareholders' equity ratio

The financial expenses coverage ratio (operating income before amortization of goodwill + share in the results of companies accounted for by the equity method)/net financial expenses reached 9.6 in 2004, compared with 12.1 in 2003. This change results from the increase in interest expenses due to the acquisition of Messer activities.

## Proportion of fixed-rate debt

As of December 31, 2004, fixed-rate debt represented 61% of total Group debt adjusted for outstanding short-term investments. Including all optional hedges, the portion of hedged debt (fixed rate + optional hedges) was 84%, as follows:

		12/31/2003	12/31/2004
EUR debt	Portion of fixed-rate debt	49%	55%
	Additional optional hedges	31%	33%
USD debt	Portion of fixed-rate debt	65%	88%
	Additional optional hedges	7%	4%
JPY debt	Portion of fixed-rate debt	85%	60%
	Additional optional hedges	0%	0%
Total debt	Portion of fixed-rate debt	59%	61%
	Additional optional hedges	18%	23%

In 2004, given the Group's hedging policy on interest rate risks, outstanding fixed-rate debt was kept at around 60%. The fixed-rate portion of the USD debt increased, in the context of rising USD interest rates. Conversely, the fixed-rate portion of JPY debt decreased, to benefit from lower rates on this currency.

## Long-term debt

As of December 31, 2004, medium and long-term debt accounted for 94% of the Group's gross debt. The maturity schedule for the Group's medium and long-term debt is shown in Note (I) to the consolidated financial statements.

### Gross debt maturities by financial instrument

In millions of euros

	Total	Bonds	Private placements	Bank Debt (1)
2005	274	23	18	233
2006	103	3	0	100
2007	759	204	135	420
2008	126	5	50	71
2009	1,415	4	267	1,144
2010	511	500	0	11
2011	380	300	73	7
2012	205	0	203	2
2013	301	300	0	1
2014	501	500	0	1
Later maturity	0	0	0	0
<b>Total gross debt</b>	<b>4,575</b>	<b>1,839</b>	<b>746</b>	<b>1,990</b>

(1) Including commercial paper outstanding backed with confirmed lines of credit. The maturing date for commercial paper outstanding coincides with that of confirmed lines of credit.

## Cost of debt

In millions of euros

	2003			2004		
	Average outstanding debt	Gross interest (1)	Cost of debt	Average outstanding debt	Gross interest (1)	Cost of debt
EUR	1,243	59	4.7%	2,697	102	3.8%
USD	672	37	5.5%	887	38	4.3%
JPY	249	3	1.2%	226	3	1.4%
Other currencies	257	14	5.4%	242	13	5.4%
Other charges (2)		3			4	
<b>Total</b>	<b>2,421</b>	<b>116</b>	<b>4.8%</b>	<b>4,052</b>	<b>161</b>	<b>4.0%</b>

(1) Interest on gross debt before financial income.

(2) Other charges excluded from cost of debt by currency.

Cost of debt is calculated by dividing interest charges for the fiscal year (excluding bank charges not directly related to debt) by the year's average total outstanding debt. The latter is calculated on the basis of a monthly average.

Cost of debt in 2004 was 4% (4.8% in 2003). This decrease is due mainly to the impact of the average rate of Messer's additional debt (about 3.3%, see page 84) on the average rate of the consolidated debt, as well as to the drop in euro short-term variable rates.

The Group's policy is to spread over time the maturity of long-term debt (bonds and private placements) in order to avoid concentration of annual refinancing needs. Given the regularity of funds from operations generated each year (1,695 million euros in 2004) and the variety of financial instruments used, refinancing of debt does not represent a liquidity risk for the Group.

The 2009 due date for bank debt is mainly attributable to maturing confirmed lines of credit designed to preserve short-term liquidity for financing purposes. The Group's policy is to renew confirmed long-term lines of credit at least one year before maturity.

## Debt liquidity

As of December 31, 2004, the Group had 2,255 million euros in committed lines of credit agreements (compared with 1,663 million euros in 2003). These back-up lines are confirmed by banks and do not contain default clauses linked to financial ratios or rating levels, nor "Material Adverse Change" clauses. The outstanding amount of French CP and USCP was 1,379 million euros as of December 31, 2004 (488 million euros in 2003). According to Group policy, the outstanding amounts of commercial paper programs must be backed-up with committed lines of credit. In 2004, this policy was followed throughout the year, and committed lines of credit have consistently been higher than commercial paper outstandings.



## 2005 Outlook

The year 2004 was marked by the acquisition of Messer activities which constitutes a major strategic step forward for the Group. The overall impact of this transaction on the Group's net indebtedness is about 2 billion euros, after divestments, acquisition costs and financial charges. At year-end 2004, with a net indebtedness of 3,790 million euros, Air Liquide's net indebtedness to shareholders' equity ratio was 66.3%, lower than the Group's objective (70%) when the acquisition was announced. Air Liquide is demonstrating again its capacity to generate strong cash flow, based on long-term contracts in particular, and to pay off its debt. Air Liquide will retain its policy of selecting and managing capital expenditures, and will pursue debt reduction steadily, while maintaining dividend policy to shareholders. In the medium term, Air Liquide plans to achieve a net indebtedness to shareholders' equity ratio in line with the Group's traditional levels, that is between 35% and 50%.

This acquisition was carried out according to the Group's financial policy. Air Liquide will continue to favor liquidity as well as prudent management of financial risks, in particular through long-term interest rate hedging to avoid fluctuations in financial expenses.

## Details of financial instruments

### Details of financial instruments for hedging foreign exchange risk

The following table shows the breakdown by currency, as of December 31, 2004, of the nominal value of financial instruments for hedging foreign exchange relating to royalties and dividends and to refinancing of subsidiaries:

#### Instruments relating to royalties and dividends

*In millions of euros*

Type of instrument	Maturity 2005	After 2005
<b>Forward sales contracts</b>		
USD	142	0
CAD	15	0
AUD (Australian dollar)	12	2
CHF (Swiss franc)	9	0
JPY	6	0
Other currencies	20	0

#### Instruments relating to inter-company financing

*In millions of euros*

	Maturity 2005	After 2005
<b>Foreign exchange swaps borrowing from banks</b>		
USD	307	0
CAD	96	0
JPY	22	0
GBP (British pound)	12	0
<b>Foreign exchange swaps lending to banks</b>		
USD	(7)	0
CHF	(23)	0
GBP	(13)	0
DKK (Danish krone)	(11)	0
SEK (Swedish krona)	(10)	0
<b>Currency swap (with exchange from variable rate to medium-term fixed rate)</b>		
JPY		36

The notional amounts in foreign currencies are converted to euros based on the year-end exchange rate.

They represent the notional value of the financial instruments.

The difference between the market value and historical cost of the instruments used to hedge the foreign exchange risks described above is positive by 22 million euros.

## Details of financial instruments for hedging interest rate risk

The financial instruments for hedging interest rates outstanding as of December 31, 2004, are shown by maturity. They are not speculative and come under the hedging policy described above.

*In millions of euros*

Type of instrument	Total	2005	2006	2007	2008	2009	≥ 2010
<b>Interest rate swaps: paying fixed, receiving floating rate</b>							
Objective: to exchange variable rates against fixed rates to guarantee future fixed rates							
EUR	1,530	550	150	200	200	300	130
USD	360	154		73	59		73
JPY	97			29		39	29
CAD	43		43				

*In millions of euros*

Type of instrument	Total	2005	2006	2007	2008	2009	≥ 2010
<b>Interest rate swaps: paying floating, receiving fixed</b>							
Objective: to exchange fixed rates against variable rates							
EUR	1,470			200	50		1,220
USD	73						73

*In millions of euros*

Type of instrument	Total	2005	2006	2007	2008	2009	≥ 2010
<b>Options: caps</b>							
Objective: to put a cap on interest rates							
EUR	875	100			275	200	300
USD	37				37		

*In millions of euros*

Type of instrument	Total	2005	2006	2007	2008	2009	≥ 2010
<b>Interest rate options: tunnel</b>							
Objective: to keep interest rates in a tunnel							
EUR	75		75				

As of December 31, 2004, the difference between the market value and historical cost of the swaps used to exchange the fixed rate EMTN and private placements into variable rates represented a positive market value of 71 million euros.

The market value of the derivative instruments used to secure the financial expenses on long-term debt at Group level was negative by 66 million euros. This is explained, in the context of falling interest rates in the main currencies, by the Group's policy of backing long-term fixed assets with fixed-rate long-term debt at the time of investment. This funding policy is aimed at protecting the Group from long-term increases in interest rates.

The net market value of all interest rate derivative instruments is therefore positive by 5 million euros as of December 31, 2004.

## Share buy-back

In compliance with resolutions approved at the General Shareholders' Meeting on May 12, 2004, Air Liquide has implemented a share buyback program designed to:

- cancel shares in order to optimize shareholders' equity and net earnings per share, in one or several stages, within the limit of 10% of the Company's share capital over a 24-month period;
- buy and sell shares based on market conditions;
- allocate share options to its own or subsidiary employees;
- sell shares in any form, whether through the exchange of shares or payment in the context of financial transactions or acquisitions.

As of December 31, 2003, Air Liquide held 1,942,112 of its own shares (representing 1,9% of share capital), of which 1,915,171 were held directly.

In 2004, Air Liquide bought back 339,743 shares (adjusted for the 2,500 shares issued in June, 2004) for a total of 44.4 million euros (at an average purchase price of 130.60 euros) and cancelled 1 million shares. This rate of share buyback is lower than in 2003 (1,185,641 shares) given the major acquisition carried out in 2004.

As of December 31, 2004, Air Liquide held 1,376,249 of its own shares representing 1.3% of share capital, of which 1,346,431 were held directly. 1 million of the shares thus held have been set aside in the event of acquisitions or other financial transactions involving exchanges of shares or payment in shares, while 346,431 have been set aside in the event of share cancellation.

# Risk factors

## Market risks

Market risks are addressed in the Financial Policy section of the Management Report (page 91).

## Specific business-related risks

As of today, Air Liquide's overall business activity does not rely on third-party patents, nor does it depend on supply, industrial, commercial or financial contracts, or new manufacturing processes.

The Group serves more than one million customers in a broad range of industries, over an extensive geographic area, thus precluding any concentration of customer credit risk for the Group.

In spite of high price volatility for electricity and natural gas driven by market deregulation, Air Liquide's policy remains the indexation of long-term customer contracts to hedge these risks. Recent fluctuations in electricity prices led the Group to replace its pricing indices, for the regulated period, with indices relevant to each national market. For several years, the Group has followed the same approach for natural gas. In parallel, Air Liquide has optimized its policy for the supply of electricity and gas. This policy enables the Group to offer the best possible terms to its customers, safely and with transparency, as it is based on reliable and efficient sources of supply.

## Legal risks

The Group has a worldwide presence. Its subsidiaries operating industrial and medical gases production units are obliged to comply with rules and regulations in force locally, particularly in the technical field.

Furthermore, in Healthcare, certain products may be subject to drug regulatory control.

At this time, the Group has no knowledge of any exceptional facts or litigation, including in the very recent past, that could significantly affect its property, financial situation, activities or results.

## Industrial and environmental risks

Industrial and environmental risks are detailed in the section on sustainable development in the Annual Report, particularly in the following two sections: "Preserving life and the environment" (page 42) and "Sustainable development" (page 149).

These sections indicate the number of sites under the European Seveso directive and the number of equivalent sites worldwide, distance covered by delivery trucks, electrical and thermal energy consumption, water consumption, emissions into water and the atmosphere, and progress made towards quality (ISO 9001) and environmental (ISO 14001) certifications.

These sections also include:

- The Group's safety policy, which is a key priority, with results for the last 15 years;
- The formalization within a single framework of the standards for industrial management (IMS) designed to enhance reliability, safety and risk management of the Group's industrial activities worldwide.

In addition, the Report from the Chairman of the Supervisory Board on the Company's internal control procedures presents the Group's organization and procedures for managing risks (page 139).

## Insurance management

The Group has adequate insurance coverage, underwritten by first-grade insurers, for civil liability, property damage and business interruption. Since January 1, 2003, it has had in place a captive insurance company that retains part of the property damage and business interruption risk.

## Property damage and business interruption

Group property and business interruption are covered by property and casualty insurance policies underwritten in each country in which the Group operates. Almost all of these policies are grouped under an international program.

These policies, which are generally of the "All Risks except" type, cover fire, lightning, water damage, explosions, vandalism, shock, equipment breakdown, theft and, based on the country and in limited amounts, natural disasters.

Business interruption is insured for most production sites under these same policies.

The coverage period for business interruption is 12 to 18 months.

Property damage deductibles are generally 15,000 euros per loss for small sites and 400,000 euros per loss for large production units, except in the United States, where the deductible is 1,500,000 dollars per loss. Business interruption is covered after a deductible period of 15 days for most operations, except in the United States, where coverage begins after 60 days.

Since January 1, 2003, the Group has retained a portion of property damage and business interruption risk through a captive insurance company in Luxembourg. This captive insurance company covers losses of up to 5 million euros per loss over and above the deductibles to a maximum of 10 million euros per year. Beyond that amount, risks are transferred to insurers. The captive is fully integrated into the international damage and business interruption program.

Insurers conduct regular visits at the main industrial sites for risk assessment purposes.

### **Liability**

In terms of liability, the Group maintains two different coverages, one for the North American zone and another for the rest of the world. The North American zone is covered by insurance underwritten in the United States. For the other zones, the Group has taken out an umbrella policy, underwritten in France, which covers both the Company and its subsidiaries outside of the United States and Canada, beyond any local coverage.

These two policies cover liability of the Group companies for any damage they might cause to a third party in the course of doing business (operational risk) or arising from their products (product risk). Furthermore, with certain limitations, these policies cover the pollution risk and the costs of recalling products.

The amount of coverage is above 500 million euros. Both of these policies include several overlapping lines of insurance. Each line has been underwritten for a given amount with several insurers sharing the risk. Beyond the first line, the upper lines pick up the excess risk from the lower lines.

The policy underwritten by the Company in France serves as an umbrella for subsidiaries outside of North America. Under this umbrella, each foreign subsidiary has its own policy covering damages to third parties incurred through its activities or products. The amount insured for each subsidiary in its policy depends on its sales. Beyond the amount insured locally, subsidiaries are insured under the French umbrella policy.

The deductible is 2,000,000 dollars per loss for insurance underwritten in the United States for North America. The deductible of the umbrella policy underwritten in France is 15,250 euros per loss for the other countries, but with higher amounts for non-consecutive immaterial damage, pollution, recall costs and "Electronics" customers.

The main exclusions are deliberate acts, war, nuclear incidents and repair of defective products.

# Pensions and other benefits

Air Liquide provides its employees with various pension plans, termination indemnities, jubilees, and other post-employment benefits for both active employees and retirees. These plans vary according to laws and regulations applicable in each country as well as specific rules in each subsidiary.

These benefits are covered in two ways:

- Defined contribution plans;
- Defined benefit plans.

Defined contribution plans are those whereby employers undertake to pay regular contributions. The employer's obligation is limited to payment of the established contributions. The employer does not provide any guarantee as to the future level of benefits paid to the current or retired employee (a type known as a "means-based obligation").

The annual liability corresponds to the contribution due in one fiscal year that releases the employer from any further liability.

Defined benefit plans are those whereby the employer guarantees the future level of fixed benefits under the agreement, most often in proportion to level of salary and length of service (a type known as a "result-based obligation").

Defined benefit plans may be either:

- financed by payments to specialized asset management funds, or
- managed internally.

Defined benefit plans require:

- Evaluation of the employer's obligations towards its employees;
- Evaluation of the assets' market value of the external funding;
- Evaluation of the expenses to be accrued annually, based on liability changes and return on the funds invested.

Defined contribution and defined benefit plans are both implemented in the Air Liquide Group.

These plans have been set up in countries where the Group has operations to ensure that Air Liquide employees receive benefits in line with customary practices of large companies operating in those countries.

Defined contribution plans basically involve the pension plans of L'Air Liquide S.A. and its French subsidiaries, the 401K plans in the United States and some Canadian pension plans.

The defined benefit plans mainly involve:

- The American, Japanese, Swiss and German plans, as well as some Canadian plans;
- The French and Italian severance payments;
- The American and Canadian retiree medical plans.

The table below illustrates the status, as of December 31, 2004, of the various defined benefit plans operating within the Group (for its major subsidiaries and obligations).

## Commitments for defined benefit plans

millions of euros

as of 12/31/2004	Projected benefits	External funding market value	Balance sheet provisions	Over-funding (under-funding)
Europe	699	277	362	(60)
Americas	452	319	56	(77)
Asia-Pacific	92	41	53	2
<b>Total</b>	<b>1,243</b>	<b>637</b>	<b>471</b>	<b>(135)</b>

Commitments valued by actuaries.

Benefits are regularly valued by actuaries. These valuations are performed for each plan according to International Accounting Standards. The actuarial method used is the projected unit credit method taking into account final pay.

Actuarial gains and losses above 10% of the greater of liabilities or assets are amortized over the Employees Average Remaining Service Lifetime (EARSL).

The actuarial assumptions (turnover, mortality, retirement age, salary increase) vary according to demographic and economic conditions in each country.

The discount rates used to determine the liability are based on government bonds or high-quality corporate bonds with the same duration as the liabilities at the valuation date.

The expected return on long-term assets is determined by taking into account, in each country, the asset allocation in the portfolio.

According to international accounting regulations, some obligations may appear to be under-funded or not sufficiently provisioned, even if they are on a par with or in excess of the figures established under the local regulations.

Decisions with regard to coverage of any under-funded plans are taken for each individual plan in accordance with local requirements applicable in the countries where subsidiaries are located. Any additional financing required is generally spread over several fiscal years.

The Group has established a policy to monitor and control pension and other employee benefits with the help of an independent actuary in order to ensure the relevance of the actuarial and financial assumptions and the validity of the calculations.

### **Charges accrued during the 2003 and 2004 fiscal years for pensions and other benefits**

*In millions of euros*

	2003	2004
Defined benefit plans	39.2	51.2
Defined contribution plans	59.1	57.1

### **L'Air Liquide S.A. and subsidiaries included under the pension agreement**

Several pension plans co-exist within the Group:

The parent company and a number of subsidiaries in France grant:

■ Additional benefits to retirees (5,034 retirees as of December 31, 2004) and to employees over 45, or with more than 20 years of service as of January 1, 1996 (1,047 employees as of December 31, 2004). These benefits provide a supplemental retirement income based on final pay, which is paid in addition to the other normal retirement benefits. This plan was closed on February 1, 1996.

The annual amount paid with respect to this plan cannot exceed 12% of payroll or 12% of pre-tax profit for the companies involved.

As a consequence of the plan closing, this 12% value will be reduced starting in year 2010, based on the annual decrease in the number of retirees.

Due to these limits, this plan is viewed as a defined contribution plan. The expenses are accounted for in the financial statements as they are paid since these liabilities cannot be viewed as ongoing and stable for the companies.

The contributions amounted to 36.1 million euros in 2004 (34.6 and 34.0 million euros in 2003 and 2002 respectively).

Without the limits, the actuarial value of the annual contributions paid to those eligible until the plan is stopped, would be, as of December 31, 2004, equal to 402.7 million euros (300.8 million euros for retirees and 101.9 million euros for active employees).

■ An externally funded defined contribution plan for other employees not in the plan mentioned above (4,347 employees as of December 31, 2004) with at least one year of service. Contributions to this plan are jointly paid by the employer and employee. For fiscal year 2004, employer contributions amounted to 6.2 million euros (2003 and 2002: 5.5 and 5.0 million euros respectively).

The other main pension plans are defined benefit plans in North America (United States and Canada, 36% of liabilities), in Switzerland (10% of liabilities), in Germany (22% of liabilities), in Spain (8% of liabilities) and in Japan (7% of liabilities).

# Statutory auditors' offices and remuneration

## Statutory auditors' offices

### Ernst & Young

#### Principal statutory auditor

The Ernst & Young Audit firm is represented by Jean-Claude Lomberget  
Tour Ernst & Young – 92037 Paris La Défense Cedex

#### Substitute statutory auditor

Valérie Quint with Ernst & Young Audit  
Tour Ernst & Young – 92037 Paris La Défense Cedex

### Mazars & Guérard

#### Principal statutory auditor

The Mazars & Guérard firm is represented by Frédéric Allilaire  
39, rue de Wattignies – 75012 Paris

#### Substitute statutory auditor

Patrick de Cambourg with Mazars & Guérard  
39, rue de Wattignies – 75012 Paris

All statutory auditors, principals and substitutes, were appointed on May 12, 2004. Their term of office expires at the end of the General Shareholders' Meeting to vote on the financial statements for 2009. Financial statements for 2002 and 2003 were certified by the Ernst & Young Audit and RSM Salustro-Reydel firms.

## Statutory auditors' remuneration

Remuneration recorded in 2004 by the Air Liquide Group relating to statutory auditors' services are as follows:

*In thousands of euros*

	ERNST & YOUNG	MAZARS & GUÉRARD	Other	Total 2004	Total 2003
<b>Audit services</b>					
Statutory audit	5,054	771	744	6,569	5,741
Other audit services	2,895	2	67	2,964	950
<b>Total of audit services</b>	<b>7,949</b>	<b>773</b>	<b>811</b>	<b>9,533</b>	<b>6,691</b>
<b>Other services</b>					
Tax and legal <sup>(1)</sup>	1,423		501	1,924	1,193
Information systems	44		46	90	59
Other services	200		271	471	160
<b>Total of other services</b>	<b>1,667</b>	<b>0</b>	<b>818</b>	<b>2,485</b>	<b>1,412</b>
<b>Total of auditors' remuneration</b>	<b>9,616</b>	<b>773</b>	<b>1,629</b>	<b>12,018</b>	<b>8,103</b>

(1) Tax and legal services performed by Ernst & Young mainly concern foreign subsidiaries.



# Stock options and stock purchase plans

Following the decisions of the General Shareholders' Meeting and on recommendation of the Selection and Remuneration Committee, the Board of Directors, the Supervisory Board and the Management Board have adopted, at Group level, stock options schemes for senior executives (including executive directors) and key employees.

These options schemes are intended to motivate key executives at Group level, retain the most performing individuals and focus them on the medium and long-term interests of shareholders.

In addition, on the occasion of Air Liquide's 100-Year celebration in 2002, stock options were granted on an exceptional basis to all

Group employees worldwide with a maximum of 30 stock options each.

Stock options are granted for a minimum unitary amount equal to 100% of the average market price of the last 20 days prior to the day they were granted. The maximum exercise term is ten years for stock options granted before May 4, 2000, seven years for those granted between May 4, 2000, and April 8, 2004, and eight years for those granted since that date. A very small number of stock options have been granted on condition that certain objectives be achieved during a defined period.

## Options granted over the last ten years

(maximum exercisable term after the date of grant)

	1996	1997	1998	1999	2000	2001	2002	2002 (2)	2004	2004
Date of authorization by the Extraordinary General shareholders' Meeting	05/22/96	05/22/96	05/22/96	05/12/99	05/04/00	05/04/00	04/30/02	04/30/02	04/30/02	05/12/04
Date of allocation by the Board of Directors or the Management Board	05/22/96	09/24/97	01/22/98	05/12/99	09/07/00	08/28/01	06/14/02	10/10/02	04/08/04	11/30/04
Total stock options granted	105,000	73,000	20,000	264,300	702,900	5,900	955,400	769,130	500,000	35,385
including to officers and directors	30,000	0	20,000	44,000	70,000	0	75,000	60	57,000	15,000
including to top ten executives whose number of options granted is the highest	43,000	55,000	0	46,000	83,500	5,900	112,000	300	77,000	12,325
Number of recipients	28	16	1	122	321	2	481	31,012	448	38
Exercise period start date	05/22/96	09/24/02	01/22/03	05/12/04	09/07/04	08/28/05	06/14/06	10/10/06	04/08/08	11/30/08
Expiration date	05/21/06	09/23/07	01/21/08	05/11/09	09/06/07	08/27/08	06/13/09	10/09/09	04/07/11	11/29/12
Purchase price (in euros)	138.73	140.25	140.25	148.00	142.00	155.00	168.00	128.00	139.00	131.00
Purchase price as of 12/31/04 <sup>(1)</sup>	82.29	91.41	-	108.69	114.75	125.25	135.75	116.36	126.36	131.00
Total stock options granted adjusted as of 12/31/04 <sup>(1)</sup>	172,076	92,202	24,799	353,990	854,851	7,032	1,179,924	842,116	549,921	35,385
Total stock options exercised as of 12/31/04 <sup>(1)</sup>	20,594	1,000	0	15,579	21,989	0	0	1,983 <sup>(4)</sup>	0	0
Total stock options cancelled as of 12/31/04 <sup>(1)(3)</sup>	0	83,090	24,799	22,777	51,740	2,700	36,393	42,138	11,333	650
Total stock options remaining as of 12/31/04 <sup>(1)</sup>	151,482	8,112	0	315,634	781,122	4,332	1,143,531	797,995	538,588	34,735

The total number of stock options remaining as of December 31, 2004, was 3,775,531.

(1) Adjusted to take into account share capital increases through bonus share allocations (2004, 2002, 2000, 1998, 1996).

(2) Exceptional plan approved in 2002, for the Company's 100-Year celebration and involving all Group employees who met certain conditions, including seniority. Plan limited to a maximum of 30 stock options per recipient.

(3) Loss of exercise rights and, for 1997 and 1998, non-achievement of three-year net earnings per share performance targets.

(4) Early exercise of rights provided for in the stock options plan.

During 2004, 585,306 adjusted stock options were granted at an average adjusted price of 126.64 euros to employees of the Company and of its subsidiaries. Also in 2004, 133,299 stock options were exercised at an average purchase price of 82.61 euros.

The total number of adjusted stock options, granted by the Board of Directors, the Supervisory Board, and the Management Board under the schemes authorized by General Shareholders' Meetings, but not exercised as of December 31, 2004, amounts to 3,775,531 options, i.e. 3.46% of the capital shares (average purchase price: 121.41 euros), of which 584,122 (at an average price of 123.57 euros) have been granted to the general management.

These stock options are to be exercised within a ten-year maximum term after the day they were granted for those granted by May 4, 2000, within a seven-year maximum term for those granted between May 4, 2000 and April 8, 2004, and within an eight-year term for those granted since that date.

Stock options were granted between September 24, 1997, and May 12, 1999, can only be exercised after a five-year minimum term. The stock options granted since May 12, 1999, can only be exercised after a four-year minimum term from the date they were granted.

As of December 31, 2004, out of the total number of options authorized by the General Shareholders' Meeting, 3,240,039 options have not been granted by the Supervisory Board and the Management Board.

**Options granted to the ten officers of the Company and its subsidiaries (excluding officers and directors) with the highest number of options granted**

In 2004, 77,000 options were granted to ten officers of the Company and its subsidiaries (excluding officers and directors) who received the highest number of options. This number was adjusted upward to 84,710 to factor in the capital increase resulting from the bonus share allocation of June 14, 2004, (one bonus share for ten held).

**Options exercised in 2004 by the ten officers of the Company and its subsidiaries (excluding officers and directors) with the highest number of options exercised**

Granted in	Number of options exercised	Average price (in euros)
1994	10,203	68.44
1996	817	90.52
1997	1,000	100.55
1999	12,500	110.84
2000	8,155	114.75
<b>Total</b>	<b>32,675</b>	<b>97.75</b>

# Remuneration of officers and directors of L'Air Liquide S.A.

Gross remuneration and benefits paid to members of the Management Board of L'Air Liquide S.A. for all companies in the Group, including fringe benefits, amount to:

*In thousands of euros*

	Amount for 2003		Amount for 2004	
	due	paid	due	paid
<b>Benoît Potier</b>				
- Fixed portion	821	783	863	904
- Variable portion	826	564	1,238	826
<b>Total</b>	<b>1,647</b>	<b>1,347</b>	<b>2,101</b>	<b>1,730</b>
<b>Jean-Claude Buono</b>				
- Fixed portion	478	478	468	468
- Variable portion	383	259	522	383
<b>Total</b>	<b>861</b>	<b>737</b>	<b>990</b>	<b>851</b>
<b>Klaus Schmieder</b>				
- Fixed portion			300	300
- Variable portion			330	
<b>Total</b>			<b>630</b>	<b>300</b>

In addition, the Company paid 109 thousand euros for additional pension plans to the benefit of Benoît Potier.

The whole variable portion of remuneration due for any given fiscal year is paid the following year.

In 2003, the variable portion of Management Board members' overall remuneration was based primarily on the following two factors: growth in net earnings per share and return on capital employed after tax (ROCE). Those factors were supplemented by qualitative individual objectives such as to prepare for the Group's future or to react to changes in business environment.

In 2004, remuneration policy for members of the Management Board approved by the Supervisory Board at the beginning of the year, is divided into two parts:

- A fixed portion tied to the level of responsibility and experience in the function;

- A variable portion based primarily on two factors: growth in net earnings per share, excluding foreign exchange, and return on capital employed after tax (ROCE), supplemented by a portion based on qualitative individual objectives, such as to conclude successfully all of the operations tied to the acquisition of Messer assets, to prepare for the Company's future development, to respond to changes in the business environment, to implement the productivity program, and to improve the risk management system.

The following table details members' attendance fees and other remuneration paid in 2004 to the members of the Supervisory Board.

*In thousands of euros*

Alain Joly (Chairman of the Supervisory Board)	(1) 229
Édouard de Royere	48
Prof. Rolf Krebs	31
Michel Bon	17
Thierry Desmarest	46
Pierre-Gilles de Gennes	41
Sir Christopher Hogg	52
Gérard de La Martinière	43
Cornelis van Lede	53
Béatrice Majnoni d'Intignano	40
Lindsay Owen-Jones	43
Sir Dennis Weatherstone	62

(1) For Alain Joly, this corresponds to his remuneration as Chairman of the Supervisory Board.

In addition, Édouard de Royere and Alain Joly received retirement benefits of 1,604 thousand euros and 1,039 thousand euros.

### Supervisory Board and officers' remuneration

Emoluments granted to the members of the Supervisory Board and officers of L'Air Liquide S.A., as compensation for their responsibilities in the Group, are as follows:

*In millions of euros*

	2002	2003	2004
Emoluments to the members of the Supervisory Board	0.6	0.7	0.7
Emoluments to the officers	5.6	6.6	8.4
<b>Total</b>	<b>6.2</b>	<b>7.3</b>	<b>9.1</b>

Officers include the members of both the Management Board and the Executive Committee.

The remuneration policy of senior management takes into account current market practices. It includes a substantial variable portion based on targets of Group earnings growth and individual performance.

### Stock options granted to officers and directors

Total adjusted stock options granted to officers and directors, and not exercised as of December 31, 2004, amount to:

	Total stock options granted	Average price (in euros)	Granted	
			In 2004	Over the last five fiscal years
Benoît Potier	158,489	123.41	44,002	130,666
Jean-Claude Buono	87,890	120.21	18,701	68,237
Klaus Schmieder	15,000	131.00	15,000	15,000

The total number of stock options granted to Alain Joly, Chairman of the Supervisory Board, and not exercised as of December 31, 2004, amounts to 129,639 options at an average price of 104.72 euros. These stock options were granted to him prior to 2001, as Chairman and Chief Executive Officer or as Chief Executive Officer of the Company.

### Stock options exercised by officers and directors

The total number of options exercised by officers and directors in 2004, amounts to:

	Number of options exercised	Granted in	Average price (in euros)
Alain Joly	33,773	1994	69.52
Jean-Claude Buono	5,069	1994	69.52

### Transactions made on Company shares by officers and directors

In 2004, until November 24, 2004, when the General Regulation of the AMF (French Financial Market Authority) came into force, three members bought 1,560 shares at an average price of 143.59 euros and two members sold 21,459 shares at an average price of 141.56 euros.

From November 24, 2004, senior management's transactions on Company shares amount to:

	Nature of transaction	Average price (in euros)
Jean-Claude Buono	Sale of 700 Air Liquide shares	133.04

# Estimated impact of IFRS standards on the net opening equity as of January 1, 2004

These data are evaluative and have not been audited by the Group's statutory auditors.

From January 1, 2004, pursuant to decisions of the European Parliament and the Council of the European Union, Air Liquide will prepare its consolidated financial statements in conformity with International Financial Reporting Standards (IFRS).

The half-yearly financial statements of June 30, 2005, will be the first to be prepared according to this framework.

To allow meaningful comparisons, 2004 financial data will be restated and published using the new standards.

In 2003, the Group set up a project team with specialists from the Finance Department and the subsidiaries, working in close liaison with operations managers and the statutory auditors.

The team had the following missions:

- Identifying the main divergences between the accounting principles and methods currently applied in the Group and the IFRS standards;
- Defining the new format for presenting financial statements;
- Assessing what changes will be needed in information systems;
- Evaluating the impact of changes in accounting standards on the opening balance sheet as of January 1, 2004.

The statutory auditors have approved the accounting principles selected by Air Liquide.

In a series of special meetings, the Audit and Accounts Committee has been regularly informed of progress, the accounting decisions envisaged, and the impact of the new standards on the Group's financial statements.

The Supervisory Board has been regularly informed by the Audit and Accounts Committee and by the Management Board.

## Impact of IFRS standards on the net opening equity at January 1, 2004

The January 1, 2004, net opening equity will be restated by applying the IFRS standard, "First-time Adoption of IFRS." The following options allowed by that standard have been selected:

- Business combinations effected prior to January 1, 2004, will not be restated;
- Deferred actuarial gains and losses in defined benefit pension plans will be imputed to the net opening equity. Deferred actuarial losses are estimated at around 250 million euros. When deferred taxes are considered, the net opening equity would be reduced by 150 million euros.

The other standards significantly impacting the net opening equity are IAS 16, "Property, Plant and Equipment," and IAS 19, "Employee Benefits."

## IAS 16 - Property, Plant and Equipment

To better reflect the value of tangible assets in the balance sheet, Air Liquide has decided to change the depreciation period of certain assets with a retroactive application to the date of acquisition. The lifetime of gas production units connected to a pipeline network and liquid gas production units has been set at 20 years instead of 15 years as previously; that of pipelines has been set at 30 instead of 25 years; that of liquid gas bulk vessels at 20 years instead of 10.

These changes will generate an increase in the value of assets between 350 and 450 million euros.

After determination of deferred taxes, the net opening equity as of January 1, 2004, would be increased by between 220 and 280 million euros. The definitive amount of this adjustment will be determined during the first semester of 2005.

In addition, IFRS standards make the component approach mandatory for components intended, from the acquisition date of the assets, to be replaced at regular intervals. Accounting for provisions for major repairs is prohibited. These measures have led Air Liquide to change the accounting treatment of provisions for major overhauls of cogeneration units.

A "maintenance costs" component is identified separately in the purchase cost of each fixed asset. It corresponds to the estimated cost of a major maintenance overhaul and is amortized between two such overhauls.

## IAS 19 - Employee Benefits

Air Liquide and some of its French subsidiaries grant retirees and certain active employees additional benefits beyond the normal pension plans. These benefits and plans are all based on the employee's final salary. The supplementary plans are now closed. The annual amount paid with respect to these plans cannot exceed a percentage of payroll or, in certain cases, of the pre-tax profit for the relevant companies.

Due to these limits, this plan was viewed as a defined contribution plan. The expenses were accounted for in the financial statements as they were paid since these liabilities could not be viewed as ongoing and stable for the companies.

IAS 19 "Employee Benefits" characterizes defined contribution plans very precisely and restrictively and indicates that any plan not complying fully with the conditions imposed is a defined benefit plan by default.

As a result, the restricted definition given to defined benefit plans has forced Air Liquide to state the retirement supplement as a defined benefit plan, despite the existence of these limits that restrict the Company's liabilities.

This requalification will result in a provision against future liabilities.

The existence of limits on these liabilities creates uncertainty in the evaluation of amounts that will actually be paid to retirees.

Considering the difficulty in quantifying the impact of the limits, it was decided to account for a provision corresponding to the actuarial value of the amounts to be paid out to pensioners until the plan disappears, apart from any impact from these limits.

Under the actuarial hypotheses chosen, that provision runs between 600 and 660 million euros.

After taking deferred taxes into consideration, the net opening equity as of January 1, 2004, is consequently reduced by between 390 and 430 million euros.

The final amount of the adjustment will be determined during the first semester of 2005.

Other IFRS standards will have no significant effect on the Group's net opening equity as of January 1, 2004:

### **IAS 36 - Impairment of Assets**

In IFRS, the loss of an asset's value must be recognized when the book value exceeds the recoverable value of the asset, this corresponding to the higher of the fair value less selling costs and the useful value of the asset.

Unlike current French accounting practices, IAS 36 requires the discounting of future cash flows to determine the useful value. This discounting obligation has the effect of establishing the useful value of five of the Group's industrial sites (among several hundred) at an amount lower than their net book value.

Consequently, a provision for depreciation of tangible assets amounting to some 40 million euros will be made.

After determination of deferred taxes, the net opening equity would be reduced by about 30 million euros.

The goodwill stated in the January 1, 2004, balance sheet has been tested for impairment applying IFRS standards. The useful value of the goodwill exceeds its net book value and therefore there is no loss of value.

### **IAS 37 - Provisions, Contingent Liabilities and Contingent Assets**

Costs of dismantling, removal or reconditioning of a site on which an asset is located must be integrated into the acquisition costs of tangible fixed assets and depreciated in counterpart to the liability incurred, stated as a provision.

This measure applies to Air Liquide for bulk vessels, on-site and production units located on land owned by a third party (usually the customer).

The impact on the net opening equity as of January 1, 2004, after determination of the associated deferred taxes, is a reduction of about 20 million euros.

### **IAS 38 - Intangible Assets**

According to French accounting principles, set-up costs and certain deferred charges incurred in major operations related to business development, the amount of which cannot be set against specific goods and services, can appear as intangible fixed assets on the assets side.

These costs fall under neither the definition nor the conditions for reporting intangible fixed assets according to IFRS standards.

As a result, certain set-up costs and deferred charges, in the amount of 50 million euros, have been written off. After the related deferred taxes, the net opening equity as of January 1, 2004, would be reduced by about 30 million euros.

Development costs must be capitalized under IFRS when certain conditions have been satisfied.

Air Liquide expenses costs of research and development for the year in which they are incurred. It has been found that the conditions imposed by IFRS for capitalization of development costs were not met by Air Liquide. The accounting for development costs is unchanged under IFRS. In fact, the work performed primarily concerns development of new production or gas utilization applications or the development of new services. In most instances, this work does not lead to the completion of an intangible asset specifically intended to be used or sold.

### **IFRS 2 - Share-based Payments**

The fair value of share options allocated to managers and employees starting in November, 2002, must be expensed in charges throughout the period of acquisition of the rights, with a corresponding increase in shareholders' equity as counterpart.

The option plans at issue are those of April and November, 2004. Application of this standard will therefore have no impact on the net opening equity as of January 1, 2004.

### IAS 32/39 - Financial Instruments

IAS standards IAS 32 and 39 relating to financial instruments will apply from January 1, 2005, only.

### Impact of IFRS standards on the presentation of consolidated financial statements

#### Statement of earnings

Presentation of the consolidated statement of earnings will not change significantly.

#### Balance sheet

The main changes in the balance sheet are:

- Distinction between current and non-current;
- Presentation before offset of deferred tax asset and liability balances.

#### Statement of cash flow

The Statement of changes in financial position has been replaced by a Statement of cash flow identifying operating flows, investments, and financing.

This Statement explains the variation in net cash flow.

In addition, Air Liquide will provide an analysis of changes in net indebtedness.

### Impact on the net consolidated earnings for 2004

Application of IFRS should not significantly impact the published net earnings for 2004.

On the one hand, the IFRS 3 standard, "Business Combinations," replaces the obligation to amortize goodwill by annual goodwill impairment tests, which will increase the IFRS 2004 earnings as compared with the result published using current standards.

Also, IFRS 3 requires that restructuring costs of an acquired company be stated in the costs for that year if such restructuring is undertaken following the acquisition. Under current accounting practices, these costs are stated as goodwill, with no impact on earnings for the year.

Application of this IFRS standard means that restructuring costs incurred following the acquisition of Messer's activities, and now stated as goodwill, will be recognized as expenses in the restated 2004 earnings.

The amounts generated by these two changes mandated by IFRS 3 are essentially the same and offset each other in the published net earnings.

The other IFRS standards should not materially affect the published net earnings. For years subsequent to 2004, application of the IFRS standards will have a significantly positive effect on earnings, resulting primarily from the abandoning of the amortization of goodwill.

### Summary of the impact of IFRS on the net opening equity as of January 1, 2004

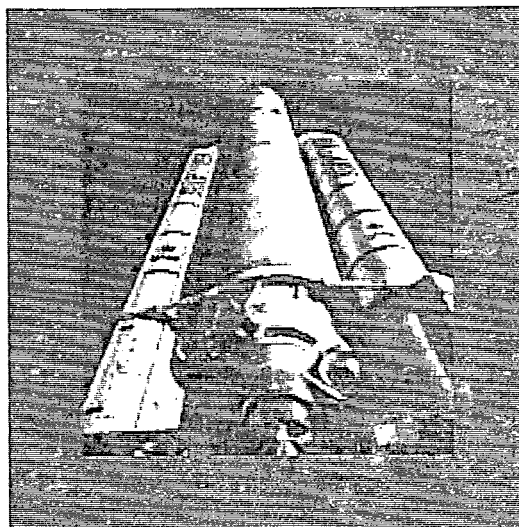
#### Estimated, non-audited data

Shareholders' equity and minority interests as of January 1, 2004, in compliance with French accounting regulations: 5,539 million euros

*In millions of euros*

Estimated impact, after tax, of IFRS on the net opening equity as of January 1, 2004	
IAS 16	
Rates of amortization of certain tangible assets	between 280 and 220
IAS 19	
Cancellation of deferred actuarial losses	(150)
Liabilities under pension plans of L'Air Liquide S.A. and its French subsidiaries	between (390) and (430)
Other standards (IAS 36, IAS 37, IAS 38)	(90)
Total estimated impact (non-audited amounts)	between (350) and (450)
Estimated shareholders' equity and minority interests as of January 1, 2004, applying IFRS standards	between 5,189 and 5,089

# Consolidated financial statements



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# Principles and methods of consolidation

The consolidated financial statements of the Air Liquide Group have been prepared in accordance with applicable French accounting principles, in particular the CRC 99-02 regulation.

## I - Principles of consolidation

### 1 - Companies included and consolidation methods used

The consolidation methods used are:

- full consolidation method;
- proportional method;
- equity method.

#### a - Full consolidation method

Where companies are fully consolidated, all assets and liabilities are included in the consolidated balance sheet after adjustments for minority interests. Revenues and expenses are similarly included in the Statement of consolidated earnings.

All significant subsidiaries in which the Air Liquide Group has an interest greater than 50% and, when certain conditions specified by law have been met, companies in which its interest is comprised between 40% and 50% are fully consolidated.

#### b - Proportional method

Under such consolidation method, assets and liabilities as well as revenues and expenses are recognized in the consolidated statements in proportion to the controlling interest held.

The proportional consolidation applies to partnerships in which revenues and expenses are shared between the partners equally to their controlling shares.

#### c - Equity method

Significant companies in which Air Liquide Group's interest is above 20% and those where its interest is greater than 50% but which are not sufficiently important to justify their being fully consolidated are accounted for by the equity method. Thus, only the share of net equity and earnings which corresponds to Air Liquide Group's percentage of interest are included.

#### d - Other investments

Investments in other companies not fully or proportionally consolidated or accounted for by the equity method are recorded in the consolidated balance sheet under the heading «Other investments» and are reflected in consolidated earnings only to the extent of dividends received.

## 2 - Adjustments arising on consolidation

### a - Intercompany balances and transactions

All intercompany balances between fully consolidated companies as well as intercompany gains or losses on Group transactions are eliminated.

### b - Regulatory provisions

Movements in those provisions which have been established in conformity with fiscal regulations or which are similar to reserves are eliminated in the determination of consolidated net earnings.

These provisions mainly concern depreciation for tax purposes, provisions for price increases and for investments.

### c - Deferred taxes

Adjustments made for consolidation purposes which may result in timing differences between income reported for income tax purposes and that reported in the consolidated financial statements give rise to deferred taxes. They are computed using current tax rates.

Deferred income taxes are primarily the result of:

- accelerated depreciation for tax purposes;
- provisions which are not immediately tax deductible.

### d - Translation of financial statements of foreign subsidiaries

The financial statements of foreign subsidiaries are translated into euros as follows:

- balance sheet items, at the official year-end exchange rates;
- statement of earnings and Statement of changes in financial position items, at average exchange rates for the year;
- resulting translation adjustments are recorded as a separate component of shareholders' equity and minority interests;
- financial statements of subsidiaries located in highly inflationist countries are translated at historical rates.

## II - Valuation methods

The consolidated financial statements are prepared on the basis of historical costs without re-evaluation.

### 1 - Fixed Assets

#### a - Intangible Assets

The intangible assets are carried out at cost. Depreciation is computed on the straight-line method regarding the estimated useful life, which is generally between three and five years, excepted intangible assets corresponding to customer contracts linked to the Messer acquisition, which are amortized over an average 25-year period.

#### b - Property, plant and equipment

Land, buildings and equipment are carried out at cost. Financial expenses were expensed as incurred until December 31, 1994.

Effective January 1, 1995, financial expenses are capitalized during the period of construction where it relates to the financing of major projects over a 12-month period of development. This change was made considering the Group's substantial development of investments in these major projects.

Assets under capital leases are capitalized and depreciated according to Group rules.

Depreciation is computed on the straight-line method, using the following estimated useful lives:

- buildings: 20 years
- cylinders: 20 years
- plants: 10 to 15 years
- pipelines: 25 to 35 years
- other equipment: 5 to 15 years

#### c - Goodwill

Goodwill or badwill represent the difference between the purchase price and the fair value of the net assets acquired at the date of purchase. In the consolidated balance sheet, this difference is reflected on the assets for goodwill and on provisions for badwill, unless allocated to the related fixed assets.

Goodwill represent either the intangible assets or the control premium paid for the acquisition of assets.

Considering the nature of the acquisitions and the activities of the Group, goodwill are being amortized on a straight-line basis generally over 40 years for gas activities and over 10 to 20 years for other activities. Furthermore, where circumstances indicate that adverse changes have occurred in the estimates used in the initial computation of goodwill, the amount thereof is reduced accordingly.

Under exceptional circumstances (investments financed by proceeds from stock offering, etc.), goodwill may be eliminated against retained earnings.

#### d - Depreciation

When events or changes of background and market conditions involve a loss in value, a detailed review of the fixed assets is performed to reduce their net book value either to the market value or to the useful value. Useful value is calculated based on future operational cash flows representing the best estimation of the economic assumptions for the remaining useful life of the assets.

### 2 - Other investments

Other investments are reflected in the consolidated balance sheet at the lower of cost or market method on a going concern basis.

### 3 - Inventories

Inventories are valued at the lower of cost or market. The cost of certain categories of raw materials and finished goods, principally welding supplies and equipments, is determined using the LIFO method. The cost of other inventories is determined using the FIFO method, or by the average cost method.

### 4 - Engineering and construction

Revenues from engineering and construction activities are recorded when the contract is completed. Provisions are established for losses anticipated on uncompleted contracts.

### 5 - Innovation costs (research and development)

Based on the definition published by the OECD, innovation costs include all costs relating to scientific and technical activities, patent work, training and knowledge sharing necessary for the development, manufacturing, start-up and marketing of new or improved products and processes. Innovation costs are charged to income when they are incurred.

### 6 - Pensions and employee benefits

In accordance with laws and practices of each country, the Group contributes to pensions, pre-pensions and termination indemnity plans. The valuation methods which are applied are described in note (N) to the consolidated financial statements.

# Impact of the acquisition of Messer activities on consolidated financial statements

Air Liquide signed on May 7, 2004, an agreement for the acquisition of Messer's activities in Germany, the United Kingdom and the United States. Since then, these activities have been integrated into the consolidated financial statements.

Purchase consideration for shares is 2,684 million euros.

This acquisition has been approved by European and American competition authorities under the condition of divestments which have been completed under the following conditions:

- Sale of liquid gas activities in the United States to Matheson Tri-Gas, Inc. (a subsidiary of Nippon Sanso), effective as of November 2, 2004;
- Sale of Industries, bulk and cylinders activities in Germany to Praxair, effective as of December 3, 2004;
- Signing, on November 24, 2004, of an agreement to sell the 51% interest held in Messer Nippon Sanso to a newly-established subsidiary by Nippon Sanso Corporation.

By purchasing this interest, Taiyo Nippon Sanso exercised its right to buy Air Liquide's shares in the joint-venture. This sale was effective as of January 14, 2005.

As of December 31, 2004, divestments net of taxes amounted to 699 million euros.

As of May 7, 2004, goodwill, after allocation of acquisition and restructuring costs and after step-up of purchased assets, amounted to 1,517 million euros.

It is being amortized over a forty year period.

The main impacts of the Messer acquisition on 2004 financial statements are as follows:

## Statement of earnings as of December 31, 2004:

*In millions of euros*

Net sales	470.7
Operating income before depreciation/amortization	111.9
Depreciation and amortization	(85.8)
Operating income	26.1
Net financial income (expense)	(55.6)
Earnings of discontinued activities	32.3
Minority interests	1.1
Net earnings	1.7

Earnings of discontinued activities include cash flows from these activities from May 7, 2004, to the selling date, net capital gains stemming from divestments of certain Group assets in Germany, and the write-off of computer software existing prior to the acquisition which became subsequently redundant.

## Main impacts on Balance Sheet as of December 31, 2004

*In millions of euros*

<b>Assets</b>	
Net intangible assets	228.3
Property, plant & equipment	986.4
Net goodwill	1,492.2
<b>Liabilities and shareholders' equity</b>	
Provisions and deferred income taxes	762.8
Net indebtedness	1,988.2

## Main impacts on Statement of changes in financial position as of December 31, 2004

*In millions of euros*

Acquisition debt (including acquisition costs)	(2,735.6)
Sales of discontinued activities	699.0

# Statement of earnings

Years ended December 31

In millions of euros

	Notes	2002	2003	2004
Net sales <sup>(1)</sup>	(1)	7,900.4	8,393.6	9,376.2
Cost of products sold, operating expenses and innovation costs	(2)	(5,925.6)	(6,388.9)	(7,184.9)
Depreciation and amortization	(3)	(813.2)	(808.7)	(914.4)
<b>Operating income<sup>(1)</sup></b>		<b>1,161.6</b>	<b>1,196.0</b>	<b>1,276.9</b>
Financial income (expense), net	(4)	(127.2)	(106.0)	(143.4)
Equity in earnings of companies accounted for by the equity method <sup>(1)</sup>		56.0	49.5	36.5
Other income (expense), net	(5)	(49.6)	(50.4)	(67.7)
Earnings of discontinued activities	(6)			32.3
<b>Earnings before income taxes</b>		<b>1,040.8</b>	<b>1,089.1</b>	<b>1,134.6</b>
Current income taxes	(7)	(343.8)	(362.6)	(337.7)
Deferred income taxes	(7)	53.6	55.3	44.9
<b>Earnings before minority interests</b>		<b>750.6</b>	<b>781.8</b>	<b>841.8</b>
Minority interests		47.4	56.2	64.3
<b>Net earnings</b>		<b>703.2</b>	<b>725.6</b>	<b>777.5</b>
<b>Net earnings per share (in euros)<sup>(2)</sup></b>	(8)	<b>6.42</b>	<b>6.68</b>	<b>7.20</b>

(1) For geographic information, see pages 122 to 124.

(2) Net earnings per share for 2002 and 2003 have been adjusted to take into account the bonus share allocation in 2004 of one share for ten held.

## Note (1) - Net sales - analysis by business lines

In millions of euros

	2002	in %	2003	in %	2004	in %
Gas and Services	6,887.0	87.2	7,388.5	88.1	8,275.2	88.2
AL Welding Group	460.1	5.8	423.2	5.0	485.7	5.2
Other activities	343.4	4.3	328.8	3.9	338.4	3.6
Engineering	209.9	2.7	253.1	3.0	276.9	3.0
<b>Total</b>	<b>7,900.4</b>	<b>100.0</b>	<b>8,393.6</b>	<b>100.0</b>	<b>9,376.2</b>	<b>100.0</b>

AL Welding Group produces and distributes welding and cutting consumables and equipment.

Other activities mainly include chemicals and diving.

Total foreign exchange impact on sales in 2004, compared with 2003, was -2.8%, i.e. 231.5 million euros. This impact was linked to the conversion of the financial statements of the Group's foreign subsidiaries into euros. It stemmed from the appreciation of the euro against foreign currencies, mainly the US dollar and the yen. Total foreign exchange impact on sales in 2003 versus 2002 was -6.3%.

The effect of changes in the consolidation perimeter on 2004 sales, compared with 2003, was +8.1%, i.e. 682.0 million euros at constant exchange rates). This was principally linked with the consolidation of Messer (+5.6%) in Germany, the United Kingdom and the United States from May 7, 2004. The remainder of this effect stemmed mainly from the full-year consolidation by the proportional method of SOAEO's subsidiaries in Singapore and Hong Kong (+1.3%), and from the acquisition of Livingston's metrology activities (+0.4%). The effect of changes in the consolidation perimeter on 2003 sales, compared with 2002 was +5.5%.

The impact of natural gas on sales was +0.5% in 2004 compared with 2003 (i.e. 36.1 million euros excluding foreign exchange). This impact concerned essentially the Group's North American activities. In 2003, compared with 2002, the impact was +2.9%.

## Note (2) - Cost of products sold, operating expenses and innovation costs

In millions of euros

	2002	2003	2004
Purchases including inventory variations	(2,688.4)	(2,999.2)	(3,432.5)
Salaries and employee benefits	(1,590.8)	(1,641.4)	(1,828.8)
Other operating expenses	(1,964.6)	(2,069.3)	(2,325.9)
	<b>(6,243.8)</b>	<b>(6,709.9)</b>	<b>(7,587.2)</b>
Miscellaneous operating income	49.5	48.5	83.0
Production costs of fixed assets capitalized	268.7	272.5	319.3
<b>Total</b>	<b>(5,925.6)</b>	<b>(6,388.9)</b>	<b>(7,184.9)</b>

Innovation includes activities defined as such by the OECD, notably in the field of research and development.

In 2004, innovation costs amount to 161.5 million euros, of which research and development expenses are 103.3 million euros.

In 2003 and 2002, these costs amount to 149.5 and 151.8 million euros of which research and development expenses are 94.3 and 92.1 million euros.

Other operating expenses include net reversal of provisions of 7.2 million euros in 2004 compared with net provisions of -20.7 million euros in 2003 and -34.1 million euros in 2002.

These provisions are mainly related to pension costs, termination indemnities and other benefits, doubtful accounts receivables and payables, engineering contracts completion costs and employee profit sharing.

## Note (3) - Depreciation and amortization

In millions of euros

	2002	2003	2004
Intangible assets	(35.4)	(44.7)	(65.8)
Property, plant and equipment	(740.1)	(724.6)	(781.7)
Goodwill	(37.7)	(39.4)	(66.9)
<b>Total</b>	<b>(813.2)</b>	<b>(808.7)</b>	<b>(914.4)</b>

## Note (4) - Financial income (expense), net

In millions of euros

	2002	2003	2004
Financial expenses net of interest income	(133.3)	(110.3)	(150.4)
Financial expenses capitalized	4.2	2.7	3.4
Dividends received	1.9	1.6	3.6
<b>Total</b>	<b>(127.2)</b>	<b>(106.0)</b>	<b>(143.4)</b>

## Note (5) - Other income (expense), net

In millions of euros

	2002	2003	2004
Gains on disposal of fixed assets and investments	8.4	2.2	12.7
Miscellaneous income and expenses (net)	(19.9)	(9.8)	(54.2)
Exceptional provisions	(38.1)	(42.8)	(26.2)
<b>Total</b>	<b>(49.6)</b>	<b>(50.4)</b>	<b>(67.7)</b>

Gains on disposal of fixed assets and investments are of ordinary and repetitive nature.

Miscellaneous income and expenses (net) include notably the exceptional costs related to management operations, notably the changes in some organizations within the Group.

In 2003, they comprise a net profit of 17.5 million euros arising from the consolidation of Japan Air Gases.

In 2002 and 2003, non-recurring provisions have been recorded to cover customers credit risks, expenses related to the harmonization of the Group's information systems, and exceptional depreciation of assets or deferred charges linked to the development of new activities.

In 2004, they include provisions for risks linked to the implementation of advanced technologies.

### Note (6) - Earnings of discontinued activities

For details on earnings of discontinued activities, please turn to the section on the "Impact of the acquisition of Messer activities on consolidated financial statements" (page 114).

### Note (7) - Income taxes

Reconciliation between the standard tax rate and the effective Group tax rate:

(in %)

	2002	2003	2004
Standard tax rate	36.5	35.9	34.5
Impact of transactions taxed at reduced rates	(2.9)	(3.2)	(3.2)
Impact of tax rates changes	(1.1)	0.2	(0.4)
Impact of permanent differences and others	(3.0)	(3.3)	(3.4)
<b>Effective Group tax rate</b>	<b>29.5</b>	<b>29.6</b>	<b>27.5</b>

The standard tax rate is the average rate obtained by applying the statutory tax rate for each country to their related earnings before tax.

Effective Group tax rate is determined as follows: (current and deferred income taxes)/(earnings before income taxes excluding equity in earnings of companies accounted for by the equity method).

In France, L'Air Liquide S.A. has elected to determine French income taxes on a consolidated basis, including all French subsidiaries complying with the requirements.

Foreign subsidiaries have also elected to apply for similar rules wherever this is allowed under local regulations.

### Note (8) - Net earnings per share - dilutive impact of stock options

	2002	2003	2004
<b>Net earnings (in millions of euros)</b>	<b>703.2</b>	<b>725.6</b>	<b>777.5</b>
<b>Adjusted average number of shares <sup>(1)</sup></b>	<b>109,477,929</b>	<b>108,624,523</b>	<b>107,937,967</b>
Dilutive impact of stock options	2,375,017	3,406,992	3,586,602
<b>Adjusted average number of shares - diluted</b>	<b>111,852,946</b>	<b>112,031,515</b>	<b>111,524,569</b>
<b>Net earnings per share (in euros) <sup>(2)</sup></b>	<b>6.42</b>	<b>6.68</b>	<b>7.20</b>
<b>Diluted earnings per share (in euros) <sup>(3)</sup></b>	<b>6.29</b>	<b>6.48</b>	<b>6.97</b>

(1) The adjusted weighted number of shares outstanding during the year is calculated by excluding treasury shares; the number of shares for 2002 and 2003 have been adjusted to take into account the allocation, in 2004, of one bonus share for ten shares held.

(2) The 2002 and 2003 net earnings per share take into account the allocation in 2004 of one bonus share for ten shares held.

(3) The calculation takes into account stock options granted as of December 31, of each fiscal year, assuming that all these options would be exercised.

No other financial instrument which may generate additional dilution of net earnings per share has been created by the Group.

# Balance sheet

Years ended December 31

## Assets

In millions of euros

	Notes	2002	2003	2004
<b>Fixed assets</b>				
Intangible assets	(A)	449.3	474.3	769.1
Less: accumulated depreciation		(244.2)	(250.3)	(297.8)
		<b>205.1</b>	<b>224.0</b>	<b>471.3</b>
Property, plant and equipment	(B)	13,696.5	13,913.7	15,432.5
Less: accumulated depreciation	(B)	(7,542.5)	(7,986.2)	(8,516.1)
	(1)	<b>6,154.0</b>	<b>5,927.5</b>	<b>6,916.4</b>
Goodwill	(C)	1,308.6	1,259.0	2,800.0
Less: accumulated depreciation		(408.0)	(431.6)	(489.1)
		<b>900.6</b>	<b>827.4</b>	<b>2,310.9</b>
		<b>7,259.7</b>	<b>6,978.9</b>	<b>9,698.6</b>
<b>Other non-current assets</b>				
Long-term loans, receivables and other assets		149.8	156.1	259.6
Investments in companies accounted for by the equity method	(1) (D)	313.4	268.1	206.5
Other investments	(E)	111.1	100.4	70.0
		<b>574.3</b>	<b>524.6</b>	<b>536.1</b>
Total long-term assets	(1)	<b>7,834.0</b>	<b>7,503.5</b>	<b>10,234.7</b>
Inventories	(F)	<b>563.0</b>	<b>655.5</b>	<b>758.6</b>
<b>Current assets</b>				
Trade receivables	(G)	1,848.4	1,945.6	2,250.3
Prepaid expenses and other assets	(G)	360.0	462.0	396.4
Short-term loans	(I)	46.5	43.1	61.3
Marketable securities	(I)	41.4	79.5	396.9
Cash	(I)	265.7	315.6	326.8
		<b>2,562.0</b>	<b>2,845.8</b>	<b>3,431.7</b>
Total current assets and inventories		<b>3,125.0</b>	<b>3,501.3</b>	<b>4,190.3</b>
Total assets		<b>10,959.0</b>	<b>11,004.8</b>	<b>14,425.0</b>

(1) For geographic information, see pages 122 to 124.

## Liabilities and shareholders' equity

In millions of euros

	Notes	2002	2003	2004
<b>Shareholder's equity</b>				
Capital stock		1,109.0	1,099.0	1,201.1
Additional paid-in capital		12.1	67.3	76.8
Retained earnings		3,626.4	3,434.8	3,480.3
Treasury shares		(231.4)	(247.5)	(162.1)
Net earnings for the year		703.2	725.6	777.5
	(2)	<b>5,219.3</b>	<b>5,079.2</b>	<b>5,373.6</b>
Minority interests	(2)	<b>232.8</b>	<b>460.0</b>	<b>341.5</b>
Provisions and deferred income taxes	(H)	<b>1,170.9</b>	<b>1,104.0</b>	<b>1,793.7</b>
Long-term debt	(I)	<b>2,289.2</b>	<b>1,985.3</b>	<b>4,300.8</b>
<b>Total capital employed</b>				
		<b>8,912.2</b>	<b>8,628.5</b>	<b>11,809.6</b>
<b>Current liabilities</b>				
Trade payables		834.8	936.5	1,104.4
Other liabilities		1,125.3	1,256.7	1,236.5
Short-term debt	(I)	86.7	183.1	274.5
<b>Total current liabilities</b>				
		<b>2,046.8</b>	<b>2,376.3</b>	<b>2,615.4</b>
<b>Total liabilities and shareholders' equity</b>				
		<b>10,959.0</b>	<b>11,004.8</b>	<b>14,425.0</b>
Commitments and contingencies	(K)			

(2) See Statement of shareholders' equity - Minority interests, page 121.



# Statement of changes in financial position

Years ended December 31

*In millions of euros*

	2002	2003	2004
Net earnings	703.2	725.6	777.5
Minority interests	47.4	56.2	64.3
Depreciation and amortization	813.2	808.7	914.4
Deferred income taxes	(53.6)	(55.3)	(46.8)
Increase (decrease) in provisions	18.4	(0.9)	(9.1)
Equity in earnings of companies accounted for by the equity method, less dividends received	(14.5)	7.9	(5.4)
<b>Funds from operations</b>	<b>1,514.1</b>	<b>1,542.2</b>	<b>1,694.9</b>
including funds from discontinued activities			27.0
Distribution:			
– L'Air Liquide S.A.	(366.1)	(414.2)	(336.1)
– Minority interests	(29.6)	(44.7)	(153.4)
Industrial investments	(632.8)	(746.8)	(875.4)
Financial investments	(306.9)	(74.9)	(2,858.5)
Sales of fixed assets and investments	59.0	40.2	40.9
Sales of discontinued activities			699.0
Other non-current assets and miscellaneous	5.5	5.4	(31.9)
Change in working capital	182.8	(15.6)	(234.3)
<b>Net before financing</b>	<b>426.0</b>	<b>291.6</b>	<b>(2,054.8)</b>
Proceeds from issues of capital stock	3.4	12.1	13.3
Purchase of treasury shares	(91.5)	(150.8)	(44.4)
Effect of exchange rate changes	194.4	151.5	88.7
Net indebtedness of newly consolidated companies	28.9	(12.3)	(62.9)
<b>Change in net indebtedness</b>	<b>561.2</b>	<b>292.1</b>	<b>(2,060.1)</b>
Net indebtedness at beginning of year	(2,583.5)	(2,022.3)	(1,730.2)
Net indebtedness at year-end	(2,022.3)	(1,730.2)	(3,790.3)
<b>Net indebtedness analysis</b>			
Short-term loans	46.5	43.1	61.3
Marketable securities	41.4	79.5	396.9
Cash	265.7	315.6	326.8
Long-term debt	(2,289.2)	(1,985.3)	(4,300.8)
Short-term debt	(86.7)	(183.1)	(274.5)
<b>Net indebtedness at year-end</b>	<b>(2,022.3)</b>	<b>(1,730.2)</b>	<b>(3,790.3)</b>

# Statement of shareholders' equity - Minority interests

In millions of euros

	Capital stock	Additional paid-in capital	Retained earnings	Cumulative conversion adjustment	Treasury shares	Total shareholders' equity	Minority interests
<b>Balance as of December 31, 2001</b>	<b>999.0</b>	<b>259.2</b>	<b>4,514.6</b>	<b>(54.6)</b>	<b>(364.9)</b>	<b>5,353.3</b>	<b>323.0</b>
Increases/Decreases in capital stock	0.6	3.6				4.2	1.1
Bonus share allocation	125.9	(42.0)	(83.9)			0.0	
Distribution			(366.1)			(366.1)	(29.6)
Foreign currency translation				(374.2)		(374.2)	(34.3)
Capital decrease due to cancellation of treasury shares	(16.5)	(208.7)			225.2	0.0	
Purchase in treasury shares					(91.5)	(91.5)	
Miscellaneous			(9.4)		(0.2)	(2) (9.6)	(3) (74.8)
2002 net earnings			703.2			703.2	47.4
<b>Balance as of December 31, 2002</b>	<b>1,109.0</b>	<b>12.1</b>	<b>4,758.4</b>	<b>(428.8)</b>	<b>(231.4)</b>	<b>5,219.3</b>	<b>232.8</b>
Increases/Decreases in capital stock	1.0	5.3				6.3	5.8
Distribution			(414.2)			(414.2)	(44.7)
Foreign currency translation				(302.8)	0.2	(302.6)	(36.6)
Capital decrease due to cancellation of treasury shares	(11.0)		(123.5)		134.5	0.0	
Purchase in treasury shares					(150.8)	(150.8)	
Impact of merger		(4) 49.9	(4) (49.9)			0.0	
Miscellaneous			(4.4)			(2) (4.4)	(3) 246.5
2003 net earnings			725.6			725.6	56.2
<b>Balance as of December 31, 2003</b>	<b>1,099.0</b>	<b>67.3</b>	<b>4,892.0</b>	<b>(731.6)</b>	<b>(247.5)</b>	<b>5,079.2</b>	<b>460.0</b>
Increases/Decreases in capital stock	1.5	9.5				11.0	2.3
Bonus share allocation	111.5		(111.5)			0.0	
Distribution			(336.1)			(336.1)	(153.4)
Foreign currency translation				(106.3)	0.1	(106.2)	(14.5)
Capital decrease due to cancellation of treasury shares	(11.0)		(118.7)		129.7	0.0	
Purchase in treasury shares					(44.4)	(44.4)	
Miscellaneous			(7.4)			(2) (7.4)	(3) (17.2)
2004 net earnings			777.5			777.5	64.3
<b>Balance as of December 31, 2004 (1)</b>	<b>1,201.0</b>	<b>76.8</b>	<b>5,095.8</b>	<b>(7) (837.9)</b>	<b>(162.1)</b>	<b>5,373.6</b>	<b>341.5</b>

(1) Including, as of December 31, 2004, -181.7 million euros of cumulative translation adjustment for the euro area and -147.1 million euros concerning the devaluation of the Argentinean Peso.

(2) As of December 31, 2004, the number of shares issued is 109,180,823 at per value 11 euros. In 2004, movements on capital stock have been as follows:

- 135,198 shares issued for cash, resulting from the exercise of stock options,
- capital decrease due to cancellation of 1,000,000 treasury shares,
- creation of 9,898,377 shares issued for cash, resulting from the allocation of one bonus share for ten shares held,
- creation of 234,331 shares issued for cash, resulting from a 10% increase in the number of shares received during the one-for-ten bonus share allocation.

The total number of treasury shares amounts to 1,376,249 shares as of December 31, 2004 (including 1,346,431 shares held by L'Air Liquide S.A.). In the fiscal year, the movements on the treasury shares have been as follows:

- cancellation of 1,000,000 shares,
- acquisition of 337,243 shares for an average price of 131.6 euros.

(2) Including withholding taxes paid by some subsidiaries (amounts included in the overall calculation of the withholding tax on dividends paid by L'Air Liquide S.A.).

(3) Corresponding to changes of the Group percentage of interest in consolidated subsidiaries:

- in 2002, purchase of minority interests of Air Liquide Japan;
- in 2003, consolidation of Japan Air Gases;
- in 2004, purchase of minority interests of Air Liquide Japan.

(4) Consists mainly in a 60.9 million euros merger bonus accounted for consequently to the merger of Cofigaz into L'Air Liquide S.A. and offset by a 11.0 million euros transfer from Additional paid-in-capital to Retained earnings.

# Geographic information

2004

## Statement of earnings

In millions of euros

	France	Europe (excluding France)	Americas	Asia- Pacific	Africa	Total
<b>Net sales</b>						
Gas and Services	1,619.6	2,753.9	2,237.7	1,512.1	151.9	8,275.2
AL Welding Group	165.9	319.8				485.7
Other activities	230.5	43.5	57.8	6.6		338.4
<b>Sub-total without Engineering/Construction</b>	<b>2,016.0</b>	<b>3,117.2</b>	<b>2,295.5</b>	<b>1,518.7</b>	<b>151.9</b>	<b>9,099.3</b>
Engineering/Construction	69.5	36.8	33.3	88.3	49.0	276.9
<b>Total</b>	<b>2,085.5</b>	<b>3,154.0</b>	<b>2,328.8</b>	<b>1,607.0</b>	<b>200.9</b>	<b>9,376.2</b>
<b>Operating Income</b>						
Gas and Services	296.8	502.2	305.5	213.0	33.9	1,351.4
Other activities	43.5	38.0	5.9	4.9		92.3
R&D centers/corporate					(166.8)	(166.8)
<b>Total</b>	<b>340.3</b>	<b>540.2</b>	<b>311.4</b>	<b>217.9</b>	<b>33.9</b>	<b>1,276.9</b>
<b>Equity in earnings of companies accounted for by the equity method</b>	<b>10.0</b>	<b>6.1</b>	<b>1.1</b>	<b>12.4</b>	<b>6.9</b>	<b>36.5</b>

## Balance sheet

<b>Property, plant and equipment (net)</b>	<b>872.4</b>	<b>2,756.2</b>	<b>2,163.9</b>	<b>1,007.7</b>	<b>116.2</b>	<b>6,916.4</b>
<b>Investments in companies accounted for by the equity method</b>	<b>59.8</b>	<b>35.0</b>	<b>13.3</b>	<b>78.8</b>	<b>19.6</b>	<b>206.5</b>
<b>Total long-term assets</b>	<b>1,292.8</b>	<b>4,753.9</b>	<b>2,705.6</b>	<b>1,313.5</b>	<b>-168.9</b>	<b>10,234.7</b>

### Notes:

- Net sales are based upon the location of operations except for the engineering activity which is based upon customer location.
  - Air Liquide Welding Group produces and distributes welding and cutting consumables and equipment. Other activities mainly include chemicals and diving.
  - In 2004, SOXAL (Singapore) and HKOAC (Hong Kong), subsidiaries of SOAEO, were consolidated by the proportional method.
- Comparisons with sales and operating income should be made with 2002 and 2003 pro forma information.

2003

Statement of earnings

In millions of euros

	France	Europe (excluding France)	Americas	Asia- Pacific	Africa	Total
<b>Net sales</b>						
Gas and Services	1,544.8	2,232.3	2,131.4	1,336.3	143.7	7,388.5
AL Welding Group	148.7	274.5				423.2
Other activities	222.9	38.9	60.4	6.6		328.8
<b>Sub-total without Engineering/Construction</b>	<b>1,916.4</b>	<b>2,545.7</b>	<b>2,191.8</b>	<b>1,342.9</b>	<b>143.7</b>	<b>8,140.5</b>
Engineering/Construction	63.9	34.3	12.8	103.8	38.3	253.1
<b>Total</b>	<b>1,980.3</b>	<b>2,580.0</b>	<b>2,204.6</b>	<b>1,446.7</b>	<b>182.0</b>	<b>8,393.6</b>
<b>Operating Income</b>						
Gas and Services	313.9	466.0	278.3	166.5	31.4	1,256.1
Other activities	48.2	29.2	4.3	4.1		85.8
R&D centers/corporate					(145.9)	(145.9)
<b>Total</b>	<b>362.1</b>	<b>495.2</b>	<b>282.6</b>	<b>170.6</b>	<b>31.4</b>	<b>1,196.0</b>
<b>Equity in earnings of companies accounted for by the equity method</b>	<b>5.3</b>	<b>4.1</b>	<b>1.5</b>	<b>31.9</b>	<b>6.7</b>	<b>49.5</b>

Balance sheet

Property, plant and equipment (net)	862.1	2,082.7	1,964.2	897.0	121.5	5,927.5
Investments in companies accounted for by the equity method	56.9	31.7	20.9	139.3	19.3	268.1
<b>Total long-term assets</b>	<b>1,257.0</b>	<b>2,564.7</b>	<b>2,241.8</b>	<b>1,268.1</b>	<b>171.9</b>	<b>7,503.5</b>

Pro forma

Net sales	1,980.3	2,580.0	2,204.6	1,556.6	182.0	8,503.5
Operating income	362.1	495.2	282.6	194.9	31.4	(145.9)

Notes:

- Net sales are based upon the location of operations except for the engineering activity which is based upon customer location.

- Air Liquide Welding Group produces and distributes welding and cutting consumables and equipment. Other activities mainly include chemicals and diving.

Pro forma includes 50% of net sales and operating income of SOXAL (Singapore) and HKOAC (Hong Kong), SOAEO subsidiaries accounted for by the equity method.

2002

Statement of earnings

In millions of euros

	France	Europe (excluding France)	Americas	Asia- Pacific	Africa	Total
<b>Net sales</b>						
Gas and Services	1,465.2	2,113.5	2,226.4	962.2	119.7	6,887.0
AL Welding Group	176.2	283.9				460.1
Other activities	222.8	38.4	75.0	7.2		343.4
Sub-total without Engineering/Construction	<b>1,864.2</b>	<b>2,435.8</b>	<b>2,301.4</b>	<b>969.4</b>	<b>119.7</b>	<b>7,690.5</b>
Engineering/Construction	66.6	34.7	41.3	46.6	20.7	209.9
<b>Total</b>	<b>1,930.8</b>	<b>2,470.5</b>	<b>2,342.7</b>	<b>1,016.0</b>	<b>140.4</b>	<b>7,900.4</b>
<b>Operating Income</b>						
Gas and Services	303.0	449.3	308.9	121.6	22.6	1,205.4
Other activities	56.3	31.6	1.7	5.8		95.4
R&D centers/corporate					(139.2)	(139.2)
<b>Total</b>	<b>359.3</b>	<b>480.9</b>	<b>310.6</b>	<b>127.4</b>	<b>22.6</b>	<b>1,161.6</b>
Equity in earnings of companies accounted for by the equity method	10.2	4.4	1.4	33.1	6.9	56.0

Balance sheet

Property, plant and equipment, (net)	863.1	2,061.1	2,411.5	730.8	87.5	6,154.0
Investments in companies accounted for by the equity method	56.2	27.7	28.1	160.7	40.7	313.4
<b>Total long-term assets</b>	<b>1,251.4</b>	<b>2,564.4</b>	<b>2,709.2</b>	<b>1,156.9</b>	<b>152.1</b>	<b>7,834.0</b>

Pro forma

Net sales	1,930.8	2,470.5	2,342.7	1,133.7	140.4	8,018.1
Operating income	359.3	480.9	310.6	155.2	22.6	(139.2)

Notes:

- Net sales are based upon the location of operations except for the engineering activity which is based upon customer location.

- Air Liquide Welding Group produces and distributes welding and cutting consumables and equipment. Other activities mainly include chemicals and diving.

Pro forma includes 50% of net sales and operating income of SOXAL (Singapore) and HKOAC (Hong Kong), SOAEO subsidiaries accounted for by the equity method.

# Notes to the consolidated financial statements

## Note (A) - Intangible assets

### Gross Value

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations (1)	As of December 31
<b>2003</b>						
Start-up costs	39.0	2.5	(1.4)	(1.0)	(3.8)	35.3
Deferred charges	89.2	35.1	(4.8)	(0.3)	(13.6)	105.6
Business	25.8	0.2		(1.1)	8.7	33.6
Other intangible assets	295.3	32.7	(5.2)	(9.3)	(13.7)	299.8
<b>Total</b>	<b>449.3</b>	<b>70.5</b>	<b>(11.4)</b>	<b>(11.7)</b>	<b>(22.4)</b>	<b>474.3</b>
<b>2004</b>						
Start-up costs	35.3	0.7	(3.5)	(0.4)	(0.6)	31.5
Deferred charges	105.6	5.3	(2.8)	0.1	(79.7)	28.5
Business	33.6	0.1	(2.8)	0.2	5.3	36.4
Other intangible assets	299.8	46.4	(13.2)	(11.6)	351.3	672.7
<b>Total</b>	<b>474.3</b>	<b>52.5</b>	<b>(22.3)</b>	<b>(11.7)</b>	<b>276.3</b>	<b>769.1</b>

### Depreciation

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations (1)	As of December 31
<b>2003</b>						
Start-up costs	(35.1)	(17.7)	0.7	1.0	22.3	(28.8)
Business	(13.9)	(3.0)		0.6	(1.6)	(17.9)
Other intangible assets	(195.2)	(24.0)	5.0	4.0	6.6	(203.6)
<b>Total</b>	<b>(244.2)</b>	<b>(44.7)</b>	<b>5.7</b>	<b>5.6</b>	<b>27.3</b>	<b>(250.3)</b>
<b>2004</b>						
Start-up costs	(28.8)	(6.4)	3.4	0.3	5.7	(25.8)
Business	(17.9)	(3.5)	1.3	(0.1)	(2.0)	(22.2)
Other intangible assets	(203.6)	(55.8)	12.2	2.3	(4.9)	(249.8)
<b>Total</b>	<b>(250.3)</b>	<b>(65.7)</b>	<b>16.9</b>	<b>2.5</b>	<b>(1.2)</b>	<b>(297.8)</b>

(1) Other variations on gross value and depreciation mainly correspond to accounts reclassifications and effects of changes in the consolidation perimeter. In 2003 in particular, the consolidation of Japan Air Gases and, in 2004, the consolidation of Messer for 242.0 million euros, including 277.9 million euros corresponding to the valuation of some customer contracts in Germany and in the United States as part as the allocation of goodwill, and -35.9 million euros corresponding to the write-off of computer software existing prior to the acquisition which became subsequently redundant. Intangible assets corresponding to customer contracts are amortized over a 25-year period.

Deferred charges mainly include some capitalized IT expenses, as well as incorporation or capital increases costs. They are depreciated over a three-to-five-year period. Some capitalized IT expenses have been reclassified into other intangible assets in 2004.

Other intangible assets mainly consist of customer contracts resulting from Messer acquisition, concessions, computer software, licences, patents acquired and some capitalized IT expenses. Depreciation is computed over the estimated useful lives or legal limits of the assets.

Industrial investments included in the Statement of changes in financial position correspond to the increase of intangible assets and the increase of property, plant and equipment net of the variation of the balance of fixed assets suppliers between January 1, and December 31.

## Note (B) - Property, plant and equipment

Property, plant and equipment are mainly used in the gas activity.

### Gross Value

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations <sup>(1)</sup>	As of December 31
<b>2003</b>						
Land	192.9	0.4	(4.9)	(17.3)	72.7	243.8
Buildings	773.2	3.8	(18.3)	(42.5)	92.3	808.5
Equipment, cylinders, installations	12,404.9	154.5	(155.1)	(815.5)	958.1	12,546.9
<b>Total property, plant and equipment in service</b>	<b>13,371.0</b>	<b>158.7</b>	<b>(178.3)</b>	<b>(875.3)</b>	<b>1,123.1</b>	<b>13,599.2</b>
Construction in progress	325.5	512.2		(36.4)	(486.8)	314.5
<b>Total property, plant and equipment</b>	<b>13,696.5</b>	<b>670.9</b>	<b>(178.3)</b>	<b>(911.7)</b>	<b>636.3</b>	<b>13,913.7</b>
<b>2004</b>						
Land	243.8	5.3	(10.2)	(5.5)	17.2	250.6
Buildings	808.5	14.2	(17.4)	(17.8)	291.7	1,079.2
Equipment, cylinders, installations	12,546.9	204.6	(155.9)	(366.7)	1,372.2	13,601.1
<b>Total property, plant and equipment in service</b>	<b>13,599.2</b>	<b>224.1</b>	<b>(183.5)</b>	<b>(390.0)</b>	<b>1,681.1</b>	<b>14,930.9</b>
Construction in progress	314.5	638.8		(13.7)	(438.0)	501.6
<b>Total property, plant and equipment</b>	<b>13,913.7</b>	<b>862.9</b>	<b>(183.5)</b>	<b>(403.7)</b>	<b>1,243.1</b>	<b>15,432.5</b>

### Depreciation

In millions of euros

	As of January 1	Increase <sup>(2)</sup>	Decrease	Foreign exchange variation	Other variations <sup>(1)</sup>	As of December 31
<b>2003</b>						
Buildings	(423.1)	(31.6)	11.6	21.7	(54.8)	(476.2)
Equipment, cylinders, installations	(7,119.4)	(702.5)	134.9	442.8	(265.8)	(7,510.0)
<b>Total property, plant and equipment in service</b>	<b>(7,542.5)</b>	<b>(734.1)</b>	<b>146.5</b>	<b>464.5</b>	<b>(320.6)</b>	<b>(7,986.2)</b>
<b>2004</b>						
Buildings	(476.2)	(36.6)	15.6	11.2	(1.8)	(487.8)
Equipment, cylinders, installations	(7,510.0)	(790.1)	127.7	206.0	(61.9)	(8,028.3)
<b>Total property, plant and equipment in service</b>	<b>(7,986.2)</b>	<b>(826.7)</b>	<b>143.3</b>	<b>217.2</b>	<b>(63.7)</b>	<b>(8,516.1)</b>

(1) Other variations on gross value and depreciation mainly correspond to accounts reclassifications and effects of changes in the consolidation perimeter, in particular:  
- in 2003, the consolidation of Japan Air Gases for which the impact on the gross value and the amortization is respectively 590.1 million euros and -322.1 million euros.  
- in 2004, the consolidation of Messer for which the impact on the gross value is 1,047.2 million euros.

(2) Depreciation on property, plant and equipment correspond to the increase of depreciation net of the decrease of investment grants.  
Industrial investments included in the Statement of changes in financial position correspond to the increase of intangible assets and the increase of property, plant and equipment net of the variation of the balance of fixed assets suppliers between January 1, and December 31.

## Note (C) - Goodwill

### Gross Value

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations <sup>(1)</sup>	As of December 31
2002	1,276.1	106.3		(60.9)	(12.9)	1,308.6
2003	1,308.6	28.0		(49.5)	(28.1)	1,259.0
2004	1,259.0	1,577.4	(3.9)	(36.4)	3.9	2,800.0

(1) Other variations mainly correspond to reclassifications and effects of changes in the consolidation perimeter in particular in 2003, the consolidation of Japan Air Gases.

The increase in goodwill mainly corresponds:

- for 2002, to the purchase of minority interests of Air Liquide Japan (Japan);
- for 2003, to the purchase of minority interests of Oy Polargas (Finland) and the acquisition of several companies which are not significant individually;
- for 2004, to the acquisition of Messer in Germany, the United Kingdom and the United States (1,517.2 million euros after foreign exchange impact on the United States) and of Livingston metrology activities in France, the Netherlands, Germany and Spain (20.1 million euros).

In 1994, a goodwill has been directly deducted from retained earnings. The impact on the net balance of the goodwill is 124.0 million euros as of December 31, 2004 (128.3 million euros in 2003 and 132.6 million euros in 2002), with no significant impact on net earnings.

### Depreciation

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations <sup>(2)</sup>	As of December 31
2002	(404.9)	(37.7)	0.5	21.2	12.9	(408.0)
2003	(408.0)	(39.4)		17.1	(1.3)	(431.6)
2004	(431.6)	(66.9)	1.2	7.8	0.4	(489.1)

(2) Other variations mainly correspond to reclassifications from gross value to depreciation.

## Note (D) - Investments in companies accounted for by the equity method

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations <sup>(1)</sup>	As of December 31
2002	303.0	56.0	(41.5)	(33.3)	29.2	313.4
2003	313.4	49.5	(57.4)	(33.4)	(4.0)	268.1
2004	268.1	36.5	(30.5)	2.0	(69.6)	206.5

(1) Other variations mainly correspond to changes in the consolidation perimeter. Particularly, the Egyptian entities bought to Messer were accounted for by the equity method in 2002. They were fully integrated in 2003. In 2004, this amount includes 67.0 million euros corresponding to the impact of change in the consolidation method of SOAEO subsidiaries in Singapore and Hong Kong, which are now accounted for by the proportional method.



In millions of euros

Group's part in companies accounted for by the equity method as of December 31, 2004	Equity in earnings	Shareholders' equity	Net indebtedness
France	10.0	59.8	7.3
Europe (excluding France)	6.1	35.0	5.6
Americas	1.1	13.3	(3.8)
Asia-Pacific	12.4	78.8	11.4
Africa	6.9	19.6	(3.1)
<b>Total</b>	<b>36.5</b>	<b>206.5</b>	<b>17.4</b>

### Note (E) - Other Investments

In millions of euros

	2002	2003	2004
France	44.2	37.2	14.4
Europe (excluding France)	17.9	22.5	22.2
Americas	16.0	6.9	4.8
Asia-Pacific	33.0	33.8	28.6
<b>Total</b>	<b>111.1</b>	<b>100.4</b>	<b>70.0</b>

Other investments mainly include in France:

- the investment in "Air Liquide Ventures" venture capital fund amounting to 11.4 million euros as of December 31, 2004,
- in 2003, the shares of Arcelor representing 0.12% of its share capital as of December 31, 2003, acquired for a total amount of 8.9 million euros. This investment was sold in 2004.

Other investments are individually not significant.

### Note (F) - Inventories

In millions of euros

	2002	2003	2004
Raw materials and supplies	155.7	170.6	200.1
Finished and semi-finished goods	352.7	395.7	437.2
Work in progress (essentially engineering and construction contracts in progress)	162.5	167.1	239.1
Provision for obsolescence and loss on completion	(52.6)	(51.8)	(63.9)
	<b>618.3</b>	<b>681.6</b>	<b>812.5</b>
Advances received on contracts in progress	(55.3)	(26.1)	(53.9)
<b>Net</b>	<b>563.0</b>	<b>655.5</b>	<b>758.6</b>

The LIFO reserve amounts to 3.5 million euros in 2004 (no change with 2003 and 17.8 million euros in 2002).

### Note (G) - Trade receivables and other debtors

In millions of euros

	2002	2003	2004
Trade receivables	1,941.7	2,038.5	2,341.5
Provision	(93.3)	(92.9)	(91.2)
<b>Net</b>	<b>1,848.4</b>	<b>1,945.6</b>	<b>2,250.3</b>
Prepaid expenses and other assets	364.5	464.6	398.8
Provision	(4.5)	(2.6)	(2.4)
<b>Net</b>	<b>360.0</b>	<b>462.0</b>	<b>396.4</b>

Some subsidiaries have permanent programs of non-recourse sales of trade receivables. As of December 31, 2004, amounts sold and deducted from trade receivables are 74.5 million euros (165.3 and 162.7 million euros for 2003 and 2002).

## Note (H) - Provisions and deferred income taxes

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations (1)	As of December 31
<b>2003</b>						
Deferred income taxes (assets)	(297.9)	(155.1)	16.7	5.6	(2.3)	(433.0)
Deferred income taxes (liabilities)	888.3	99.8	(16.7)	(63.5)	14.0	921.9
<b>Deferred income taxes (net)</b>	<b>590.4</b>	<b>(55.3)</b>	<b>0.0</b>	<b>(57.9)</b>	<b>11.7</b>	<b>488.9</b>
Employee termination indemnities & other benefits	234.0	37.3	(31.8)	(9.9)	28.4	258.0
Provision for the engineering activity	45.0	24.8	(34.0)	(0.6)		35.2
Badwill (2)	47.6		(19.2)	(2.6)	(25.8)	0.0
Other risks and accrued expenses (3)	176.1	121.4	(63.2)	(4.5)	17.1	246.9
Investment grants & deferred revenues	70.4	5.1	(9.8)	(0.1)	0.4	66.0
Employee profit sharing	7.4	8.7	(6.7)		(0.4)	9.0
<b>Provisions</b>	<b>580.5</b>	<b>197.3</b>	<b>(164.7)</b>	<b>(17.7)</b>	<b>19.7</b>	<b>615.1</b>
<b>Total</b>	<b>1,170.9</b>	<b>142.0</b>	<b>(164.7)</b>	<b>(75.6)</b>	<b>31.4</b>	<b>1,104.0</b>
<b>2004</b>						
Deferred income taxes (assets)	(433.0)	(68.2)	44.4	3.4	(88.6)	(542.0)
Deferred income taxes (liabilities)	921.9	42.7	44.9	(35.6)	372.0	1,345.9
<b>Deferred income taxes (net)</b>	<b>488.9</b>	<b>(25.5)</b>	<b>89.3</b>	<b>(32.2)</b>	<b>283.4</b>	<b>803.9</b>
Employee termination indemnities & other benefits	258.0	24.4	(17.4)	(6.9)	212.8	470.9
Provision for the engineering activity	35.2	46.5	(27.2)	(0.6)	3.3	57.2
Other risks and accrued expenses (3)	246.9	51.9	(82.4)	(2.4)	169.6	383.6
Investment grants & deferred revenues	66.0	5.9	(8.4)		5.5	69.0
Employee profit sharing	9.0	5.8	(5.7)			9.1
<b>Provisions</b>	<b>615.1</b>	<b>134.5</b>	<b>(141.1)</b>	<b>(9.9)</b>	<b>391.2</b>	<b>989.8</b>
<b>Total</b>	<b>1,104.0</b>	<b>109.0</b>	<b>(51.8)</b>	<b>(42.1)</b>	<b>674.6</b>	<b>1,793.7</b>

(1) Other variations mainly correspond to reclassifications and effects of changes in the consolidation perimeter.

At year-end 2004, the consolidation of Messer in Germany, the United Kingdom and the United States resulted in the following changes to the consolidation perimeter:

- 209.2 million euros for Employee termination indemnities & other benefits,
- 184.4 million euros for Other risks and accrued expenses, including restructuring costs,
- 369.2 million euros for Deferred taxes liabilities.

(2) Badwill resulting from the acquisition of Messer Griesheim GmbH subsidiaries in Argentina and Brazil in 2001 have been mainly allocated to the relating assets or reversed in the net earnings in 2003.

(3) Including provisions for identified tax and industrial litigations, restructuring costs, and accelerated depreciation.

Nature of deferred income taxes are detailed into "Principles and methods of consolidation". In addition, deferred income taxes (assets) related to tax losses are not significant.

The increase (decrease) in provisions indicated in the Statement of changes in financial position corresponds to the net movement of provisions, excluding movements of investment grants and other items with no financial consequences.

None of the various known cases of litigation in which companies of the Group are involved, included environmental risks, is expected to have a significant effect on the Group's consolidated financial position, beyond provisions set up for that purpose.

## Note (I) - Net indebtedness

### Net indebtedness

In millions of euros

	2002	2003	2004
Long-term debt	2,289.2	1,985.3	4,300.8
Short-term debt (including the short-term portion of long-term debt)	86.7	183.1	274.5
<b>Total debt</b>	<b>2,375.9</b>	<b>2,168.4</b>	<b>4,575.3</b>
Short-term loans, marketable securities and cash	(353.6)	(438.2)	(785.0)
<b>Net indebtedness</b>	<b>2,022.3</b>	<b>1,730.2</b>	<b>3,790.3</b>

Maturity profile of long-term debt as of December 31, 2004, is as follows:

(After covering short-term debt by the long-term bank confirmed non-used credit lines).

In millions of euros

2006	102.8
2007	759.0
2008	125.9
2009	1,415.5
2010	510.7
2011	379.8
2012 and beyond	1,007.1
<b>Total</b>	<b>4,300.8</b>

### Analysis of net indebtedness by currency

In millions of euros

	2002	2003	2004
EUR (1)	962.1	979.7	2,717.7
USD and CAD	780.5	615.6	853.4
JPY (2)	235.0	133.2	223.4
Other currencies	44.7	1.7	(4.2)
<b>Net indebtedness</b>	<b>2,022.3</b>	<b>1,730.2</b>	<b>3,790.3</b>

(1) Changes in euro indebtedness in 2004 mainly resulted from the acquisition of Messer.

(2) Changes in yen indebtedness mainly resulted in 2002 from the acquisition of Air Liquide Japan minority interests, in 2003 from the Japan Air Gases cash integration, and in 2004 from the exceptional payment of dividends of this subsidiary.

Debt denominated in foreign currencies is repaid from funds from operations (cash flow) in the corresponding currency.

A portion of long-term debt was secured by assets pledged with a value of 39 million euros in 2004.

## Note (J) - Financial instruments

### Interest rate risk

In order to reduce its exposure to interest rate risk, the Group may enter into contracts to fix interest rates (swaps), or protect against a rise in interest rates (caps).

The interest rate differential received or paid is recorded in net financial expenses.

Fixed rate debt including the effect of interest rate swaps represents 61% of the total average indebtedness in 2004; the percentage represents 84% including interest rate caps.

The weighted average interest rate on total indebtedness is 4% for the year 2004.

### Foreign exchange risk

The Group enters into hedging contracts for exchange risk arising from economic transactions.

As a result, the Group has no exchange risk exposure.

These transactions are entered into with carefully selected bank counterparties.

## Note (K) - Commitments and contingencies

In millions of euros

	2003	2004
Commitments and contingencies linked to:		
Purchase of fixed assets and investments	262.7	204.6
Rentals and Leases	128.7	204.7
Energy purchases	87.5	165.1
Cogeneration overhauls commitments	71.2	47.0
IT Systems outsourcing in the United States	14.1	11.8
Guarantees and others	234.0	230.9
<b>Total</b>	<b>798.2</b>	<b>864.1 (1)</b>

(1) The Messer impact in 2004 amounts to 47.4 million euros.

Variation is mainly due to following events:

- purchase of shares, in particular Livingston in Europe and purchase of minority interests in the United States;
- new rental agreements in the United States;
- new contracts of energy supply in Europe.

Commitments are given for the Group's ordinary operations and will mostly be extinguished within the next two fiscal years.

## Post-closing Events

No significant post-closing event has occurred.

## Note (L) - Supervisory Board and officers' remuneration

Emoluments granted to the members of the Supervisory Board and officers of L'Air Liquide S.A., as compensation for their responsibilities in the Group, are as follows:

*In millions of euros*

	2002	2003	2004
Emoluments to the members of the Supervisory Board	0.6	0.7	0.7
Emoluments to the officers	5.6	6.6	8.4
<b>Total</b>	<b>6.2</b>	<b>7.3</b>	<b>9.1</b>

Officers include the members of both the Management Board and the Executive Committee.

The remuneration policy of senior management takes into account current market practices. It includes a substantial variable portion based on targets of Group earnings growth and individual performance. Details are provided on page 106 of this Management Report.

## Note (M) - Stock options and stock purchase plans (1)

Following the decisions of the General Shareholders' Meeting and the recommendation of the Selection and Remuneration Committee, the Board of Directors, the Supervisory Board and the Management Board have adopted, at Group level, stock options schemes for senior executives (including executive directors) and key employees.

These options schemes are intended to motivate key executives at Group level, retain the most performing individuals and focus them on the medium and long-term interests of shareholders.

In addition, on the occasion of Air Liquide's 100-Year celebration in 2002, stock options were granted on an exceptional basis to all Group employees worldwide with a maximum of 30 stock options each.

Stock options are granted for a minimal unitary amount equal to 100% of the average market price of the last 20 days prior to the day they were granted. The maximum exercise term is ten years for stock options granted before May 4, 2000, seven years for those granted between May 4, 2000, and April 8, 2004, and eight years for those granted since that date. A very small number of stock options have been granted on condition that certain objectives be achieved during a defined period.

During 2004, 585,306 adjusted stock options were granted at an average adjusted price of 126.64 euros to employees of the Company and of its subsidiaries. Also in 2004, 133,299 stock options were exercised at an average purchase price of 82.61 euros.

Total adjusted stock options, granted by the Board of Directors, the Supervisory Board and the Management Board under the schemes authorized by the General Shareholders' Meetings, but not exercised as of December 31, 2004, amounted to 3,775,531 options i.e. 3.46% of the capital shares (average purchase price: 121.41 euros), of which 584,122 options (at an average purchase price: 123.57 euros) have been granted to the present general management.

These stock options are to be exercised within a ten-year maximum term after the day they were granted for those granted by May 4, 2000, within a seven-year maximum term for those granted between May 4, 2000, and April 8, 2004, and within an eight-year term for those granted since that date.

Stock options granted between September 24, 1997, and May 12, 1999, are only exercisable after a five-year minimum term. The stock options granted since May 12, 1999, can only be exercised after a four-year minimum term from the date they were granted.

As of December 31, 2004, out of the total number of options authorized by the General Shareholders' Meeting, 3,240,039 options have not been allocated by the Supervisory Board and the Management Board.

(1) Details on stock options granted in the last ten years are provided on page 104.

## Note N - Pensions and other benefits

### A) Pension plans

Air Liquide provides its employees with various pension plans, termination indemnities, jubilees and other post-employment benefits for both active employees and retirees. These plans vary according to laws and regulations applicable in each country as well as specific rules in each subsidiary.

Defined benefit plans are in most cases financed via external pension funding. Assets are invested mostly in bonds or equities.

The Group pension liabilities with respect to defined benefit plans are based on an actuarial valuation of vested and potential future rights for actives and retirees at fiscal year end date, less the market value of assets, taking into account actuarial gains and losses.

Some employees are covered by defined contribution plans. However, these plans do not create any long-term liability. The Company's sole obligation is to pay regular contributions to an external fund based on a fixed percentage of the employees pay. The pension expense is equal to the contribution amount paid during the fiscal year.

The characteristics of the plans in force in the Group are as follows:

– In France, mandatory collective agreements provide for termination indemnities (i.e. lump sums paid at retirement which are based on the employee's service and earnings at retirement). In addition, L'Air Liquide S.A. and some French subsidiaries have a group agreement providing:

■ Additional benefits to retirees (5,034 people as of December 31, 2004) and to employees over 45, or with more than 20 years of service as of January 1, 1996 (1,047 people as of December 31, 2004). These benefits provide a retirement income based on final pay, which is paid in addition to the other normal retirement benefits (Social Security, ARRCO and AGIRC). This plan was closed as of February 1, 1996. The annual amount paid with respect to this plan cannot exceed 12% of payroll or 12% of pre-tax profit for the relevant entities. As a consequence of the plan closing, this 12% will be reduced starting in year 2010 based on the annual decrease in the number of retirees. As a consequence of these limits, this plan is viewed as a defined contribution plan for which the pension expense consists of annual payments as they are made to current retirees since these liabilities cannot be viewed as ongoing and stable. The contribution for the current fiscal year is equal to 36.1 million euros (for 2003 and 2002: 34.6 and 34.0 million euros respectively). Without the limits and until complete extinction of the plan, the actuarial value of the annual after-tax contributions paid on behalf of retirees as of December 31, 2004, and of eligible employees is equal to 402.7 million euros (300.8 million euros for retirees and 101.9 million euros for active employees).

■ An externally funded defined contribution plan for other employees not in the plan mentioned above (4,347 people as of December 31, 2004) with at least one year of service. Contributions to this plan are jointly paid by employer and employee. For fiscal year 2004, employer contributions amount 6.2 million euros (2003 and 2002: 5.5 and 5.0 million euros respectively).

The other main pension plans are defined benefit plans in North America (United States and Canada, 36% of consolidated retirement liabilities), in Germany (22% of liabilities), in Switzerland (10% of liabilities), in Spain (8% of liabilities) and in Japan (7% of liabilities).

## B) Determination of assumptions and actuarial methods

Benefits are regularly valued by actuaries. These valuations are performed according to the International Accounting Standard. The actuarial method used is the projected unit credit method taking into account final pay.

Actuarial gains and losses above 10% of the greater of liabilities or assets are amortized over the Employees Average Remaining Service Lifetime (EARSLS).

The actuarial assumptions (turnover, mortality, retirement age, salary increase) vary according to demographic and economic conditions in each country.

The discount rates used to determine the liability are based on Government bonds or High-quality Corporate bonds with the same duration as the liabilities at the valuation date.

The expected return on long-term assets is determined by taking into account, in each country, the asset allocation in the portfolio.

## C) Liabilities and assumptions

As of December 31, 2003, liabilities with respect to all existing plans, and all subsidiaries, were included in the consolidation, except for non material ones.

The liabilities for pension plans and similar benefits are shown below:

*In millions of euros*

	Liabilities	Assets	Book reserve	Unrecognized gains and losses
As of 12/31/2003	930	545	258	(127)
As of 12/31/2004	1,243	637	471	(135)

The unrecognized gains and losses as of December 31, 2004, will change in the future depending on future asset values and the actuarial assumptions.

**Change in actuarial liabilities (in millions of euros):**

Liabilities as of 12/31/2003	930
Service cost + interest cost - benefit payments	44
Change in actuarial assumptions	42
Change in perimeter (acquisitions, changes in plans' definitions)	266
Currency exchange	(39)
Liabilities as of 12/31/2004	1,243

**Change in assets (in millions of euros):**

Assets as of 12/31/2003	545
Return + contributions - benefit payments	48
Change in perimeter (acquisitions, changes in plans' definitions)	66
Currency exchange	(22)
Assets as of 12/31/2004	637

The different discount rates used are the following:

	Discount rate	
	2003	2004
Germany	5.00%	4.75%
Canada	6.25%	6.00%
United States	6.00%	6.00%
France	5.00%	4.75%
Italy	5.00%	4.75%
Japan	1.70%	1.70%

The benefit expenses for defined benefit plans and defined contributions plans for fiscal years 2003 and 2004 are as follows:

*In millions of euros*

	2003	2004
Defined contributions plans	59.1	57.2
Defined benefit plans	39.2	51.2

**Analysis of the benefit expense for year 2004 for defined benefit plans:**

*In millions of euros*

Service cost	31.3
Interest cost (net of asset return)	19.6
Other (including actuarial gains and losses amortization)	0.3

# Main consolidated companies, employees and currency rates

L'Air Liquide S.A. assumes a part of the Group's operating activities in France. It also owns directly or indirectly financial investments in its subsidiaries. L'Air Liquide S.A. mainly receives, from its subsidiaries, dividends and royalties.

L'Air Liquide S.A. assumes treasury centralization for some French subsidiaries.

## 1 - Main changes occurred in 2004

The change in consolidation perimeter in 2004, compared with 2003, is positive: +8.1% increase in sales, or 682 million euros at constant exchange rate.

This impact is principally linked with the acquisition of Messer (+5,6%) in May, 2004.

The consolidation by the proportional method of SOXAL (Singapore Oxygen Air Liquide Pte Ltd), HKOAL (Hong Kong Oxygen and Acetylen Cy Ltd), and EIG (Eastern Industrial Gases) (+1,3%), and the acquisition of Livingston (+0.4%), explain the remaining impact.

**A) Acquisitions:****Companies fully consolidated:****Messer companies:**

- Air Liquide Deutschland GmbH and its subsidiaries (Germany)	}	470.7
- ALIG Acquisition LLC (United States)		
- Air Liquide UK Limited (United Kingdom)		

**Metrology business Livingston:**

- Trescal Gestion (France) and its subsidiaries (TIS-Livingston S.A., Climats S.A., Sapratin Technologies S.A., Somelec S.A.)	}	36.8
- Livingston Calibration B.V. (The Netherlands)		
- Livingston Electronic Equipment Services S.A. (Spain)		
- Livingston Calibration GmbH (Germany)		

**Others:**

- Unident (Switzerland) acquired by Anios	1.9
- MG Tarature Srl acquired by Air Liquide Italia Srl (Italy)	3.2
- Arcana acquired by Schülke & Mayr GmbH (Germany)	0.6
- Arepa Mätteknik A.B. acquired by Air Liquide Gas A.B. (Sweden)	3.0
and Arepa Test & Kalibrering A.S. by Air Liquide Danmark A.S. (Denmark)	
- Allertec S.A. acquired by Air Liquide Hellas (Greece)	1.9
- I.T.M. S.A. acquired by Air Liquide España S.A. (Spain)	1.7
- Sudac Air Services Midi-Pyrénées and Air Solution acquired by Sudac Air Services (France)	1.1
- Others	34.6

**B) Change in consolidation method:****France**

- ETSA (change from the equity method to full consolidation method)	15.2
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**Europe**

- Air Liquide Norway (change from the equity method to full consolidation method)	2.7
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**Asia-Pacific**

- Groupe Hong Kong Oxygen and Acetylene Cy Ltd (Hong Kong)	}	Companies consolidated by the proportional method since 2004 (consolidated by the equity method in 2003)	108.6
- Singapore Oxygen Air Liquide Pte Ltd (Singapore)			
- Eastern Industrial Gases Ltd (Thailand)			

<b>Total change in consolidation perimeter on 2004 sales</b>	<b>682.0</b>
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**C) Merger and others:****France**

- Sale of Soterkenos S.A. by Sudac Air Services (France)
- Sale of the welding business of SPAL (Portugal) to Air Liquide Welding S.A. (France)

**D) Companies created and newly fully consolidated in the perimeter:****France**

- Omasa France
- AL-RE

**Europe**

- Air Liquide S.A. Acquisition GmbH & Co. KG (Germany)
- Maasvlakte Energie B.V. (The Netherlands)

**Asia-Pacific**

- Air Liquide China Holding (China)

**E) Main changes in the Group's interest:****Europe**

- Following the acquisition of minority interests by AL Innovation, the Group's interest in Metrotech is 100% in 2004 (compared with 64.9% at year-end 2003) in ATEST (compared with 95.63% at year-end 2003), in LSA (compared with 71.85% at year-end 2003) and in ASCAL (compared with 99.97% at year-end 2003).
- Following the acquisition of minority interests by AL Services, the Group's interest in Aria is 100% in 2004 (compared with 87.92% at year-end 2003) and in Logsyal (compared with 87.75% at year-end 2003).
- Following the acquisition of minority interests, the Group's interest in AL España is 99.88% in 2004 (compared with 99.83% in 2003).

**Asia-Pacific**

- Following the acquisition of minority interests, the Group's interest in AL Japan Ltd is 98.82% in 2004 (compared with 95.52% in 2003).



## 2 - Employees

The number of employees of the fully consolidated companies adds up to 35,900 people as of December 31, 2004, compared with 31,885 as of December 31, 2003.

The integration of new subsidiaries in the Group has had a positive impact of 4,000 employees.

## 3 - Currency rates

Main currency rates used:

### Average rates

Euros for one currency	2002	2003	2004
USD	1.06	0.88	0.80
CAD	0.68	0.63	0.62
Argentinean peso	0.35	0.30	0.27
JPY (1,000)	8.47	7.64	7.44

### Closing rates

Euros for one currency	2002	2003	2004
USD	0.95	0.79	0.73
CAD	0.60	0.62	0.61
Argentinean peso	0.28	0.27	0.25
JPY (1,000)	8.04	7.40	7.16

# Report of the statutory auditors on the consolidated financial statements

(Free translation of the French language original)

*This is a free translation into English of the statutory auditors' report issued in the French language and is provided solely for the convenience of English speaking readers. This report includes information specifically required by French law in all audit reports, whether qualified of not, and this is presented below the opinion on the consolidated financial statements. This information includes explanatory paragraphs discussing the auditors' assessments of certain significant accounting matters. These assessments were made for the purpose of issuing an opinion on the consolidated financial statements taken as a whole and not to provide separate assurance on individual account captions or on information taken outside of the consolidated financial statements. The report also includes information relating to the specific verification of information in the Group Management Report.*

*This report, together with the statutory auditors' report addressing financial and accounting information in the Report from the Chairman of the Supervisory Board on internal control, should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.*

To the shareholders,

In compliance with the assignment entrusted to us by your shareholders' meeting, we have audited the accompanying consolidated financial statements of Air Liquide for the year ended December 31, 2004.

The consolidated financial statements have been approved by the Management Board. Our role is to express an opinion on these financial statements based on our audit.

## **Opinion on the consolidated financial statements**

We conducted our audit in accordance with professional standards applicable in France; those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the consolidated financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall consolidated financial statements presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements give a true and fair view of the assets, liabilities, financial position and results of the consolidated group of companies in accordance with the accounting rules and principles applicable in France.

## **Justification of assessments**

In accordance with the requirements of Article L.225-235 of French Company Law (*Code de Commerce*) relating to the justification of our assessments, we bring to your attention the following matters:

■ The impact of the acquisition of certain Messer activities in Germany, the United Kingdom, and the United States is presented in the Note to the consolidated financial statements relating to this acquisition. We have reviewed the initial value of identifiable assets and liabilities, including intangible assets, resulting from this acquisition. We have verified that its treatment complies with consolidation rules.

■ Intangible assets and goodwill have been reviewed for impairment as described in the Note to the consolidated financial statements relating to the valuation methods. We have reviewed the application and the assumptions used for these impairment tests.

■ We have examined the methods and assumptions applied to record in the consolidated balance sheet the provisions for risks and charges amounting to 990 million euros and particularly the processes implemented by management to identify and assess these risks. We ensured that these provisions were in compliance with French accounting methods.

The assessments were thus made in the context of the performance of our audit of the consolidated financial statements taken as a whole and therefore contributed to the formation of our unqualified audit opinion expressed in the first part of this report.

## **Specific verification**

In accordance with professional standards applicable in France, we have also reviewed the information in the Group Management report.

We have no matters to report regarding its fair presentation and conformity with the consolidated financial statements.

Paris and Paris-La Défense, March 9, 2005

The statutory auditors

MAZARS & GUÉRARD

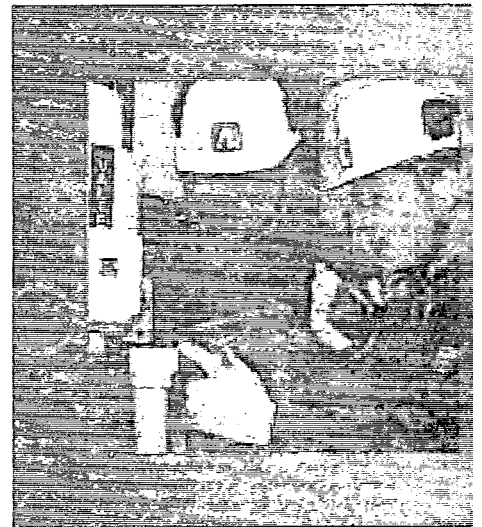
Frédéric ALLILAIRE

ERNST & YOUNG Audit

Jean-Claude LOMBERGET



# Report from the Chairman of the Supervisory Board



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# Report from the Chairman of the Supervisory Board

Conditions for the preparation and organization of the work of the Supervisory Board

The Company has adopted a structure based on a Management Board and a Supervisory Board.

## Composition of the Supervisory Board

As of December 31, 2004, the Supervisory Board comprised ten members, appointed at the General Shareholders' Meeting for a period of four years. Members are selected based on their skills, integrity, independence and their firm commitment to the interests of all shareholders.

In addition, all members have recognized experience and skills in one or more fields relevant to the Company's activities: international development, industry, health, marketing, research, economics, and finance. The experience, nationalities, and cultures represented in Air Liquide's Supervisory Board complement each other and are quite diverse.

The Supervisory Board uses certain indicators as criteria in assessing the independence of its members. An independent member must not:

- Be, nor ever have been, an employee or officer of the Company;
- Hold office as Chairman and Chief Executive Officer, Chief Executive Officer, Chairman or member of the Management Board of a company in which the Chairman of Air Liquide's Supervisory Board or a member of the Management Board is a director or a member of the Supervisory Board;
- Have a business relationship with the Air Liquide Group representing a significant part of the activity either of Air Liquide, or of the company in which the member of the Supervisory Board is an officer;
- Have any close family ties to a member of the Management Board.

On the basis of these criteria, the Supervisory Board determined that, as of December 31, 2004, the following members are independent: B. Majnoni d'Intignano, Sir Christopher Hogg, Sir Dennis Weatherstone, L. Owen-Jones, T. Desmarest, C. van Lede, G. de La Martinière and Professor R. Krebs. Thus, eight out of ten members of the Supervisory Board are independent.

## Role of the Supervisory Board - Relationship with the Management Board

The role of the Supervisory Board, as defined in law and in the Company's Articles of Association, is to continuously supervise the management of the Company exercised by the Management Board.

An internal document complementing the Articles of Association, has been approved by the Supervisory Board. It sets out the guiding principles directing the relationship between the Management Board and the Supervisory Board.

In particular, it describes how the following operate in practice:

- The Supervisory Board's right to information. Most of the information is supplied either (i) in quarterly reports in a format agreed upon with the Chairman of the Supervisory Board and presented by the Management Board; or (ii) in documents based on a standard list, containing the information the Supervisory Board needs to carry out its role;
- The Supervisory Board's right to monitor certain specific matters, in particular its review of the annual and half-yearly financial statements, the agenda for General Shareholders' Meetings, the Annual Report to the General Shareholders' Meeting, the report from the Internal Audit Department, and the Group's annual and strategic objectives;
- The Supervisory Board's own powers, for instance, to appoint members of the Management Board and its Chairman, to set their remuneration, to form committees, and to set Supervisory Board members' attendance fees;
- Setting thresholds, above which certain key decisions listed in Article 22 of the Articles of Association require prior authorization from the Supervisory Board:
  - sureties, warranties and guarantees above a unit amount of 80 million euros or for an annual combined amount above 250 million euros,
  - sales or contributions of equity interest, sales of branches of activity, mergers or partial business transfers, above a unit amount of 150 million euros or for an annual combined amount above 300 million euros,
  - arranging security above a unit amount of 80 million euros or for an annual combined amount above 150 million euros,
  - commitments for investment or acquisitions above a unit amount of 250 million euros or for an annual combined amount above 400 million euros,
  - financing operations involving sums that could substantially change the Group's financial structure,
  - granting stock options to employees or management,
  - issuing securities giving access to capital,
  - any transaction that could substantially change the Group's strategy,
  - the Company's purchase of its own shares.

## Operation of the Supervisory Board

In addition, internal regulations set guidelines for the Supervisory Board's composition aiming at balancing age, total duration of terms of office, and number of former Group officers. These internal regulations also prescribe the Supervisory Board's operating rules: conduct of meetings (number of meetings and participation by video-conference) and the formation of committees (purpose, rules of operation).

Furthermore, an internal code of conduct on the prevention of insider trading outlines the legal and regulatory obligations binding Supervisory Board members. This code of conduct also sets the limits for dealing in Company shares, by defining abstention periods during which members may not trade in those shares.

Members of the Supervisory Board declare their trades in Company shares to the Company. This information is then forwarded to the stock market authorities in compliance with current regulations.

Finally, under the Company's Articles of Association, each member of the Supervisory Board must hold at least 500 registered shares in the Company.

## Work of the Supervisory Board in 2004

In 2004, the Supervisory Board met six times, with an average attendance rate of 85.5%.

The Supervisory Board dealt with a variety of matters tied to the following three areas:

■ **Supervision of the management of the Group**, mainly carried out by:

■ Responding to the presentation of **quarterly reports** by the Management Board on the Group's activities and results; presentation of the annual objectives, and review of the consolidated and Company annual and half-yearly financial statements at the February and September meetings in the presence of the statutory auditors; in 2004, the Supervisory Board determined the frequency and typical content of reports to be made by the Management Board on its risk management policy;

■ Reviewing **reports** from the four meetings of the **Audit and Accounts Committee**, and from the three meetings of the **Selection and Remuneration Committee**;

■ Using the **prior authorization** procedure provided for in the Articles of Association, in particular for the investments necessary for industrial projects or external growth during the year; for the share buyback program; for regulated agreements; for the stock options scheme; for sureties; and for terms and conditions of Group financing;

■ Reviewing **Company documents**: responding to applications from the Works Council, and reviewing the social report and forward-planning documents;

■ Preparing for the annual **General Shareholders' Meeting** by reviewing the proposed Annual Report from the Management Board, proposed agenda, profit allocation and **proposed resolutions** for the General Shareholders' Meeting, and, finally, by preparing the Supervisory Board's report to that Meeting.

Monitoring of issues of significance to the Group in 2004, including:

■ The acquisition of **Messer's** activities in Germany, the United Kingdom and the United States: in regular meetings, and at an exceptional one, the Supervisory Board was kept well informed of progress and it approved the various stages of this external development project according to the approval procedure provided for in Article 22 of the Articles of Association. The acquisition was completed in May, following the approval of the European Commission (in March) and the U.S. Federal Trade Commission (in April). The Supervisory Board was also regularly informed on the divestments required by the competition authorities. With their approval, such divestments were for the most part carried out in the Fall of 2004. The Supervisory Board was also updated on the status of the integration process;

■ The Group's **strategic orientations**: the Management Board and several operating managers made presentations to the Supervisory Board on the main business lines, development drivers, and strategic goals identified in Asia, the Middle East, Europe, and America. A special meeting to address the Group's strategic goals took place in June, in addition to several presentations made at quarterly meetings;

■ Finally, taking into account the work and recommendations of the Audit and Accounts Committee, the Supervisory Board followed the **selection** process for the position of **statutory auditors** and nominated the firms Ernst & Young and Mazars & Guérard to be put to the General Shareholders' Meeting in May.

Operation of the corporate structure

The Supervisory Board met without members of the Management Board, to consider:

■ The **operation of the Management Board**; following the Messer acquisition, the Supervisory Board enlarged to three members the Management Board, by appointing Klaus Schmieder member of the Management Board in May. In November, the Supervisory Board renewed the terms of office of the Management Board's members and its Chairman, which were due to expire. The new three-year terms will expire on November 13, 2007 (subject to age limits set in the Articles of Association). Finally, based on the Selection and Remuneration Committee's recommendation, the Supervisory Board set the variable part of Management Board members' remuneration for the 2003 fiscal year, the fixed part and the principles that would apply to the variable part for 2004;

■ **The operation of the Supervisory Board;** at the General Shareholders' Meeting in May, the Supervisory Board put forward a motion to renew É. de Royere's term of office and nominated Professor R. Krebs for a seat on the Supervisory Board. It also renewed É. de Royere's membership and chairmanship of the Audit and Accounts Committee. This year again, the Supervisory Board conducted an assessment of its operation through individual assessment questionnaires filled out by Supervisory Board members. Responses were compiled in a summary report and provided the basis for action proposals later adopted by the Supervisory Board, notably with respect to its composition, that of its committees, its jurisdiction and training opportunities for its members. Finally, the Supervisory Board set the rules for determining its members' attendance fees for the year.

Several days prior to each of the Supervisory Board's meetings, a file of meeting documentation dealing with key items on the agenda is sent out to Supervisory Board members. Every meeting includes a detailed presentation by the Chairman and members of the Management Board on all agenda items. On specific issues, members of the Executive Committee may be asked to provide their input. In addition, the statutory auditors are involved in meetings where financial statements are reviewed. Presentations give rise to questions and discussions before resolutions are put to a vote. Detailed written minutes are sent to members for review and comments before being approved by the Supervisory Board at the next meeting.

## Committees

The Supervisory Board has formed two committees:

### The Audit and Accounts Committee

As of December 31, 2004, the Audit and Accounts Committee had four members: É. de Royere, Chairman at the Committee, Sir Christopher Hogg, G. de La Martinière and Sir Dennis Weatherstone. Of the four Committee members, three are independent. Committee members combine experience in business management with financial and accounting expertise.

#### Composition and mission as defined in the Company's internal regulations

- The Audit and Accounts Committee must include four or five members of the Supervisory Board and at least two-thirds of its members must be independent.
- The Committee obtains information jointly or, to compare different points of view, separately, from: the Management Board, the Finance, Administration and Legal departments, the Internal Audit Department, and the statutory auditors. Relying on its members' professional experience, the Committee forms a reasonable judgement on the

financial statements approved by the Management Board; on the accounting methods used; and on the existence and the operation of organizations and procedures of internal control making it possible to mitigate the risks incurred, and the way these methods and procedures are applied; the selection and renewal of the statutory auditors. The Committee reviews the selection procedure and gives advice on the choice of auditors and on the rotation of the signing partners; it reviews the nature of their work and the amount of their fees.

- The Committee meets at least three times each year, and always before the Supervisory Board meetings at which the Management Board presents the annual or half-yearly financial statements. The Committee reports on its work both orally and in writing to the Supervisory Board.

- The Committee can draw on external experts for assistance.

#### The Committee's work in 2004

The Audit and Accounts Committee met four times, with an average attendance rate of 94.1%.

- The Committee **reviewed the consolidated and Company's annual and half-yearly financial statements** and examined off-balance sheet items; taxation; non-recurring items; provisions; and the management of risk related to customers, countries and exchange. Moreover, the Committee focused its attention on the financing conditions of the Messer acquisition, as well as its impact on financial statements and the Group's debt level.

- The Committee also heard the **conclusions of the statutory auditors on these financial statements**. It ensured that the Internal Audit Department's working methods allowed it to complete assignments appropriate to the Group's business.

- In addition, the Committee received **specific presentations** on the following matters:

- Initial studies on the implementation of new IAS standards. This presentation updated the Committee on the main accounting changes flowing from the change in standards,
- Through several presentations, efforts were made to finalize the typical content of the Management Board reports to the Supervisory Board on the risk management policy. Several specific presentations focused on certain risk categories,
- The Committee was informed of the Group's insurance policy and its implementation by the various Group entities.

- Finally, the Committee played an active part in the **selection of candidates for the position of statutory auditors** to be voted on during the General Shareholders' Meeting, and communicated its recommendation to the Supervisory Board.

■ Each session required a file of meeting documentation to be prepared and sent out several days beforehand, and was preceded by individual phone interviews with the Finance Director. During the session, each presentation was made either by the Finance Director, the Internal Audit Department, the management executive expert in the area under discussion or the statutory auditors, always in the presence of a member of the Management Board, and was followed by discussion. The statutory auditors also reported in the absence of the members of the Management Board. An oral, then a written report of each meeting was prepared for the Supervisory Board.

### **The Selection and Remuneration Committee**

As of December 31, 2004, the Selection and Remuneration Committee had three members: A. Joly, Chairman of the Committee, T. Desmarest and L. Owen-Jones. Of the three Committee members, two are independent.

#### **Purpose**

■ The Committee's purpose is to regularly review the development of the Supervisory Board, and to propose candidates for new Supervisory Board members to put to the General Shareholders Meeting. It also recommends to the Supervisory Board all the terms and conditions for the appointment and remuneration of Management Board members, as well as other conditions applicable to such members. These recommendations include the granting of stock options and pension plans. The Committee also periodically reviews the development and performance of Management Board members.

■ It reviews the remuneration policy determined by the Management Board for other members of the executive team, and the requests made by the Management Board to the Supervisory Board to authorize the granting of options. The remuneration policy for members of the executive team takes into account market practices. Options are granted in order to align managers' interest more closely with the medium and long-term interests of shareholders.

■ The Committee is also kept abreast of development plans concerning management teams.

#### **The Committee's work in 2004**

The Selection and Remuneration Committee met three times, with an attendance of 100%.

■ During 2004, the Committee reported its conclusions from earlier work on the composition of the Supervisory Board. As a result, it proposed Professor R. Krebs as candidate and the renewal of É. de Royere's mandate. Following the approval of the Supervisory Board, both were elected at the General Shareholders' Meeting in May, 2004.

At the end of 2004, the Committee examined again the composition of the Supervisory Board, in particular the terms of office to be renewed, bearing in mind the established principle of balancing age and diversity of experience, cultures and nationalities. As in previous years, an external firm assisted the Committee in its search for new members. Based on its conclusions, the Supervisory Board formulated proposals for new and renewed membership as explained in the Supervisory Board report. The Committee also considered the future needs of the Supervisory Board.

■ The Committee reviewed the amount of members' attendance fees received by Supervisory Board members, and the Supervisory Board formulated the principles for apportionment and the amounts that applied to the fiscal year 2004.

■ At its first meeting in 2004, the committee reviewed the performance of Management Board members and communicated its conclusions to the Supervisory Board.

The Committee was also informed of the Management Board's appraisal of the performance and potential for development of individual members of the Executive Committee.

■ The committee set the variable part of the remuneration for Management Board members for the fiscal year 2003, based on the change in results and on individual performance appraisals.

■ Upon review of all the terms and conditions in which Management Board members perform their duties (in particular, pensions and options previously granted) and the situation in the external marketplace, the Committee made proposals to the Supervisory Board for the fixed remuneration and the formulas for calculating the variable remuneration for Management Board members for fiscal year 2004.

■ Following the acquisition of Messer activities, the Committee recommended that Klaus Schmieder be appointed to the Management Board.

■ The Committee proposed that the Supervisory Board fully renew the term of office of the Management Board's members and its Chairman, which were due to expire.



# Internal control procedures instituted by the Company

The elements of the present report have been compiled by the Group's Internal Audit Department Director in conjunction with the Board Secretary, having been solicited by the Chairman of the Supervisory Board for this purpose.

These elements were presented to the Management Board who judged them compliant with existing Group measures.

They were also presented to the statutory auditors in order to allow them to establish their own report, as well as the Audit and Accounts Committee and the Supervisory Board.

## Objectives

Internal Control procedures are part of Group policies put together by the Company and that must be implemented by each entity according to each local situation. These Group policies rely on standards, charters, codes, rules, and may also include practices.

Group policies aim:

- To ensure that the activities and behavior of its members:
  - Comply with current laws and regulations, internal standards and applicable good practices;
  - Comply with the objectives defined by the Company, especially in terms of risk prevention and risk management policies.
- To verify that all financial information communicated either internally or externally gives a true and fair view of the situation and activity of the Group.

Internal Control procedures in and of themselves, as with other assurance procedures, can not provide an absolute guarantee that all risks have been fully eliminated.

Within this context, during 2004 the Group undertook efforts with an objective of obtaining continuous improvement of the quality of Internal Control, notably:

- Development of more thorough documentation related to the risk management process;
- Realignment of multiple policies related to the industrial safety of individuals, products and installations under an Industrial Management System (IMS), which has the objective of optimizing safety and reliability;
- Revision of certain existing procedures (Accounting Manual, Finance Guidelines, Information System Access Policy);
- Reinforced communication of audit reports and follow-up of action plans that rely on documented work programs and standardized presentation formats.

## Risk management

To ensure the continued development of its activities, the Group must actively pursue an approach to prevent and manage the risks (especially industrial and financial risks) to which it is exposed.

In terms of the Group's business activities, industrial risk management must essentially focus on prioritizing safety and security while maintaining permanent focus on the reliability of installations.

Financial risk management requires strict control over investments, combined with rigorous practices regarding the accounting and financial aspects of the activities.

Within this context, during 2004 the Group reinforced documentation related to risk management policy, which is supported by:

- A more complete identification of the different forms of risk encountered by the Company during the pursuit of business activity;
- The implementation of certain procedures and controls to better manage risks along with measures to mitigate potential financial impacts;
- The regular review of the policy by the Management Board. The Management Board, in turn, provides regular updates to the Supervisory Board.

## Control background

The control background is an important element in effective risk management.

■ It is primarily based on a highly consistent Group strategy, of which the main driving force is the internal growth of Company activities.

This strategy is relayed through management which centers on medium-term objectives that are categorized by business activity, as well as through a steering process based on annual budgetary objectives, which are further categorized down to the individual plan level.

■ The control background also depends on the strict control of Group investments, notably with:

- A centralized examination of the details of investment requests (beyond certain thresholds) and of the medium and long-term contractual commitments which may arise there from.
- Control of investment decisions practised through the use of specific follow up of the authorizations granted.
- A comparative analysis of the investments profitability (for the most significant) prior to, and subsequent to, their execution.

■ The control environment is strengthened by the independence of three key control bodies which report to the Management Board:

- The **Strategic Objectives and Management Control Department** monitors objectives on the basis of management control consistent with accounting reporting;
- The **Finance and Accounting Department** ensures:
  - the reliability of accounting and financial information;
  - Group financial risk management.
- The **Internal Audit Department** verifies the effective application of internal control procedures in the framework of audits carried out according to a defined program that is presented to the Group's Audit and Accounts Committee. This program is developed based on risk analysis and is regularly followed up on by the Audit and Accounts Committee itself.

The Internal Audit Department largely relies on specific standards and processes that were redefined and harmonized in 2004 in order to improve the effectiveness and visibility of audits performed.

Audit reports are widely distributed (up to the level of the Management Board) and systematically complemented by corrective action plans.

The audit reports, as well as subsequent follow-up reports, are the object of various direct communications and discussions between the Internal Audit Department and the Company's statutory auditors. Subsequent audits are conducted to verify the effective application of these action plans.

The reports and action plans are also communicated to and discussed with the statutory auditors.

■ Finally, the control environment is completed by a framework of defined limits of authorizations and delegations:

- From the Management Board to members of the Executive Committee and certain central department executives, in order to define their power related to issuing commitments and payments for commercial operations (sales or purchases);
- From the Management Board to certain executives in charge of industrial sites, in order to ensure the prevention and control of industrial risks for the sites under their responsibility;
- From the Management Board to certain financial executives, in order to ensure the security of transactions and financial flows.

The managers of various Group subsidiaries exercise their duties under the control of the Management Board while maintaining a respect for local rules and regulations.

They make sure that the policies and practices instituted are consistent with Group objectives, while being in accordance with the specific requirements of local law.

## Internal control procedures

Procedures have been established and communicated by the Company to ensure that primary risks are addressed by the various entities in accordance with Group objectives.

The main procedures aim:

■ **To ensure the safety and security of employees, products, installations, as well as the reliability of operations with a respect for the rules and regulations for accident prevention.**

In order to achieve this, in 2004 the Company realigned the multiple Group policies related to safety and risk management.

A new Industrial Management System (IMS), which is designed to reinforce the overall process of safety and risk management was defined, formalized and distributed to all Group entities.

The IMS was tested within certain pilot countries during 2004 (Canada, Italy, China) and will be deployed in all of the Group's entities in 2005.

The IMS is based on:

■ Empowerment of the entities Executive Management for the effective implementation of this system.

■ The issue of key management and organizational procedures that aim to ensure the approach towards:

- Industrial regulatory compliance;
- Design validation;
- Risk Management;
- Occupational Health, Safety and Environment;
- Technical training and certification of personnel;
- Implementation of Group operating and maintenance procedures;
- Procurement and Contract Services;
- Management of Change;
- Proactive analysis and treatment of both incidents and accidents;
- Management reviews and Industrial Audits.

The Safety and Risk Management Department (DMRS) supervises and controls the effective implementation of IMS, by notably relying on:

- Continually increasing team awareness by providing specifically related training, and the distribution of a monthly security report available to all employees on the Group Intranet;
- A monthly presentation of indicators related to Safety and security performance that is based on the reporting of accidents or near accidents. This reporting enables progress to be measured in achieving the Group objective of "zero accidents";
- Audits carried out in conjunction with the Industrial Departments to ensure the effective implementation of the system and the compliance of operations with Group security rules.

■ **To ensure that laws, regulations and internal management rules are respected within the Group, notably in the legal and Intellectual Property areas:**

In conducting their activities, the various Group entities rely on the charters, guidelines or reference frameworks issued by the major functional departments of the Company, notably:

- For the legal area:
  - Various contractual guides, notably for Large Industries;
  - Instructions on how to behave in terms of respecting laws relating to the competitive marketplace (primarily in Europe and the United States);
  - A "Group" note specifying the rules to be respected in order to prevent insider trading;
- For the intellectual property area:
  - Procedures aiming on the one hand to ensure respect by Air Liquide for valid patents held by third parties notably in the field of cryogenic production, and on the other hand to provide protection for the Group's own intellectual property;
  - A policy for the protection of Group inventions based on their identification (on a declaratory basis) and favoring the recognition of their inventors.

□ **To manage and minimize financial risk:**

The Company has a defined financial policy that is the subject of regular reviews. This policy, which is widely distributed to the Group entities, states the principles and procedures for the management of financial risk to which the activity is exposed, notably in relation to:

- **Liquidity risks:** the Company has defined rules aimed at ensuring an appropriate level of commitment and diversification (cash and maturities) for all sources of financing at Group level;
- **Counterparty risk:** the Company has defined rules aimed at ensuring that there is sufficient diversification and financial solidity of counterparties at Group level (commitment limits/minimum rating);

- **Exchange and interest rate risks:** the Company has defined methods, managed on a centralized basis for the hedging of interest rates related to debt that is carried in major currencies (principally, Euro, USD, JPY) with:

- A selection of authorized tools;
- The steps involved in the hedging decision process;
- The methods for the execution of transactions;

For other foreign currency debts, rules have been defined in order to ensure that the decentralized transactions being initiated to cover exchange risks are coherent with the Group objectives. The Company has also defined methods for exchange risk hedging in terms of the choice of tools, the decision process and the execution of transactions.

These measures are completed by treasury management rules that are aimed at ensuring secure transactions, adapted to local circumstances and compliant with the regulations in force.

The application of this financial policy is controlled by the Finance and Accounting Department. To this end, certain transactions are executed on a centralized basis (management of debt and interest rates), which is completed by consolidated reports supplied by various Group entities on a monthly or quarterly basis, depending on their debt level. The Finance and Accounting Department answers to the Finance Committee regarding the effective execution of the policy and submits future transactions to the Committee for approval. The Finance Committee regularly reviews the rules governing the financial policy applicable within the Group.

■ **To ensure the reliability of financial and accounting information:**

In order to ensure the quality and reliability of financial and accounting information produced, the Group primarily relies on a defined framework of accounting principles and standards as well as a dual reporting system that has both management and accounting inputs with data being systematically compared by independent but interactive departments.

- In response to new accounting standards defined within IFRS, the Company undertook significant efforts to:

- Analyse and evaluate, in liaison with its statutory auditors, the impact for the Group of the new standards as of January 1, 2004;
- Inform and assist the different Group entities to prepare for implementing the new standards;
- Revise the Accounting Manual, which defines the accounting rules and principles as well as the consolidation methods applicable within the Group;

The manual, distributed to all of the Group's entities, also states the formats applicable within the Group for reporting financial and accounting information.

- Management Control reporting and the accounting reporting are each under the responsibility of independent but interactive departments, that are following identical methods and principles.

- This independence allows for the enhancement of information and analysis through the use of complementary indicators and data.

- The fact that these bodies are interactive provides for better control concerning the reliability of information thanks to a systematic process of regularly validating data.

Their consolidation is ensured by the Central Finance and Accounting Department.

This primarily includes the following:

• **Monthly management reporting, so called "monthly flash reporting"**. It provides elements related to sales and the main financial indicators: Statement of earnings, funds from operations (cash flow), net indebtedness and amount of investments authorized and engaged.

• **Quarterly reporting so called "Management Control reporting"**. It provides details of the primary elements of the Statement of earnings, balance sheet and Statement of changes in financial position.

These two documents are compiled by each entity according to a predefined timetable.

They are systematically accompanied by comments on activities drawn up by the director and the controller within the entity, and are consolidated at Group level with details for each business activity.

• **Quarterly reporting for accounting consolidation** is carried out by each subsidiary which, in addition, must provide (on a semi-annual basis) information on off-balance sheet commitments that may include:

- energy purchases,
- pension commitments,
- financial instruments,
- financial guarantees and deposits,
- all other contractual commitments.

Accounting consolidation and monthly reporting is sent to the Central Consolidation Department whose duty, in conjunction with the Strategic Objectives and Management Control Department, is, on one hand to analyse and comment on the results, and on the other hand, to identify and explain the differences with the projections that were made.

Through regular controls, the Finance and Accounting Department ensures the effective application of accounting methods and principles for the various Group entities.

It also relies on the audits carried out by the Internal Audit Department with which it has regular contact.

The reliability of financial and accounting information also depends on information systems which are becoming increasingly integrated (such as ERP),

Statutory auditors through their work ensure that reported financial information complies with the rules defined

## Control bodies

The Supervisory Board exercises its control over Group management through various reports it receives from the Management Board, relying on work done by the Audit and Accounts Committee, according to the methods and principles described above (reports, debriefings, etc).

The Management Board ensures risk management, notably through the existing reportings and through the following:

■ Executive Committee meetings, with debriefings from the Safety and Risk Management Department (DMRS) regarding Group performance in terms of security and the progress of actions underway.

■ Investment and Operations Committee meetings that it oversees;

■ Work done by the Finance and Accounting Departments, the Strategic Objectives and Management Control Department, the Internal Audit Department which report directly to the Management Board;

■ Finance Committee meetings that determine the Group's financial policy;

Control schemes are enhanced by the involvement of entity departments, the Executive Committee in terms of implementing and following-up actions needed to improve and strengthen the quality of internal controls.

### The Finance Committee

The Committee meets three times a year and upon request if need be.

This Committee includes the Group Finance and Accounting Director, the Corporate Finance and Treasury Director of the Group and certain Department members, which meet under the authority of a member of the Management Board.

The purpose of this Committee is to control the effective application of Group financial policy, to approve proposals and suggestions that have been submitted and to approve the rules governing Group financial policy.

### The Investment and Operations Committee

The Committee meets four to six times a year for each geographical area, or for each significant activity.

This Committee includes the Group Finance and Accounting Director, the Market Director, the Directors for the zone and the entity concerned by the request for investments, under the authority of a member of the Management Board.

The purpose of this Committee is to assess and approve requests for investments that have been submitted, as well as medium and long-term contractual commitments that may arise there from.

# Statutory auditors' report on the Report from the Chairman of the Supervisory Board on internal control procedures

Year ended December 31, 2004 (Free translation of a French language original)

*This is a free translation into English of a report issued in the French language and is provided solely for the convenience of English speaking readers. This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.*

To the shareholders of L'Air Liquide S.A.

In our capacity as Statutory Auditors of L'Air Liquide S.A., and in accordance with article L.225-235 of the French Company Law (*Code de Commerce*), we report to you on the Report prepared by the Chairman of the Supervisory Board of your Company in accordance with article L.225-68 of the French Company Law (*Code de Commerce*) for the year ended December 31, 2004.

Under the responsibility of the Supervisory Board, it is for management to determine and implement appropriate and effective internal control procedures. It is for the President to give an account, in his report, notably of the conditions in which the duties of the Supervisory Board are prepared and organized and the internal control procedures in place within the Company.

It is our responsibility to report to you our observations on the information set out in the Chairman's report on the internal control procedures relating to the preparation and processing of financial and accounting information.

We performed our procedures in accordance with professional guidelines applicable in France. These require us to perform procedures to assess the fairness of the information set out in the Chairman's report on the internal control procedures relating to the preparation and processing of financial and accounting information. These procedures notably consisted of:

- obtaining an understanding of the objectives and general organization of internal control, as well as the internal control procedures relating to the preparation and processing of financial and accounting information, as set out in the Chairman's report;
- obtaining an understanding of the work performed to support the information given in the report.

On the basis of these procedures, we have no matters to report in connection with the information given on the internal control procedures relating to the preparation and processing of financial and accounting information, contained in the Chairman of the Supervisory Board's report, prepared in accordance with article L.225-68 of the French Company Law (*Code de Commerce*).

La Défense, March 9, 2005

The statutory auditors

MAZARS & GUÉRARD

Frédéric ALLILAIRE

ERNST & YOUNG Audit

Jean-Claude LOMBERGET

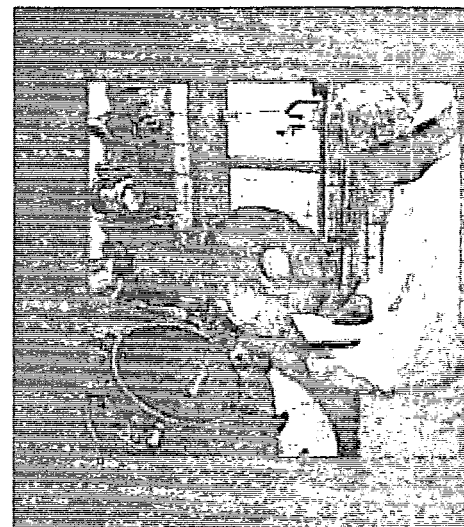
# Sustainable development

■ Summary of indicators

■ Objectives

The principles of sustainable development have been at the heart of Air Liquide's corporate strategy for over a century. Sustainable development of Air Liquide includes four dimensions: responsibility to shareholders, long-term business development and Company performance coupled with transparency. Safety for people and assets, preservation of the environment and of natural resources, both in Group operations and at customer sites. Social and ethical commitment of Company employees to common objectives. Innovation and technological progress to guarantee the advancement of the Company and its customers.

Benoît Potier - Chairman of the Management Board



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## Methodology for reporting human resources, safety and environmental indicators

### Protocol and definitions

In the absence of a relevant and recognized benchmark for industrial gas activities, Air Liquide has produced a protocol to define its reporting methods for human resources, safety and environmental indicators.

This protocol includes in a single document all the definitions, measurement procedures and methods for collecting this information.

In line with the Group's commitment to continuous improvement, Air Liquide is constantly making adjustments to its sustainable development indicators protocol to reflect changes in the Group. This protocol is based on the general principles defined by the Group with regard to perimeter, responsibilities, controls and limits, and establishes definitions, responsibilities, tools and data-tracing methods for each indicator. This document is regularly updated.

### Perimeter and consolidation methods

Unless highlighted, the acquired Messer activities have not been integrated into the consolidation perimeter for human resources, security and environmental indicators for 2004. They will, however, be fully integrated in 2005.

As a general rule, production units or entities are integrated after one calendar year's full operation.

Human resources indicators are consolidated worldwide for all companies globally integrated within the financial consolidation perimeter.

Safety indicators are consolidated worldwide for all companies in which Air Liquide owns the majority of the share capital.

Information on kilometers traveled by delivery vehicles covers the world. Figures are calculated on the basis of data collected in the top 24 countries where the Group is established. Information on kilometers saved through on-site air gas production units is worldwide and involves all countries globally integrated within the financial consolidation perimeter.

Environmental and energy indicators for the seven main types of production units operated by the Group are consolidated for the first year based on a world perimeter that includes the main countries in which the Group is established (Austria, Belgium, Bulgaria, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Luxembourg, the Netherlands, Poland, Portugal, Spain, Sweden, Switzerland, Canada, the United States, Argentina, Brazil, Chile, South Africa, Botswana, Egypt, Morocco, Tunisia, China, South Korea, India, Indonesia, Japan, the Philippines, Singapore, Taiwan, Thailand, Australia, and New Zealand). This perimeter, which accounts for about 99% of the Group's sales in Gas and Services, and 89% of the Group's total sales (excluding Messer), has been expanded from 2003. Only Europe and North America were included in the consolidation perimeter in 2003.

Data on units whose operating permit has been granted to a company in which Air Liquide has a majority interest are fully consolidated (100%). Data on units operated by a company in which Air Liquide has a 50% interest are consolidated at 50%. Data on units whose operating permit has been granted to a company in which Air Liquide has a minority interest have not been taken into account. The various types of production units are:

- main air separation units;
- co-generation units, and hydrogen and carbon monoxide production units;
- acetylene, nitrous oxide, carbon dioxide units, as well as hygiene and specialty products units.

Estimates of the Group's sales percentage covered by ISO 9001 quality or ISO 14001 environmental certifications are based on the companies included within the financial consolidation perimeter.

Energy consumption of on-site units, as well as water consumption specific to the sale of treated water at the Bayport site (United States), are excluded from the data consolidation perimeter.

Certain sites including several activities may report data on only one of those activities.

## Reporting and responsibility

Human resources, safety and environmental indicators are produced by several data collection systems in the Group, each under the responsibility of a specific department:

- human resources indicators included in the Group's general accounting consolidation tool, are under the dual responsibility of the Finance Department and the Human Resources Department;
- safety indicators are based on the Group's accident reporting tool, which falls under the Safety and Risk Management Department (DMRS);
- the energy indicators for the main air separation units, co-generation, hydrogen and carbon monoxide units, are tracked by the Large Industries division using a dedicated Intranet tool. This data also enables the Large Industries division to calculate carbon dioxide emissions from the co-generation and hydrogen and carbon monoxide units, as well as carbon dioxide emissions avoided through use of co-generation;
- Complementarily, the collection of environmental data is carried out by the Safety and Risk Management Department (DMRS) using a dedicated Intranet tool, and includes:
  - for the units mentioned above, other environmental indicators (atmospheric emissions, water consumption, discharge to water, etc.);
  - for the smaller units (acetylene, nitrous oxide, carbon dioxide units, and hygiene and specialty products units), all indicators (energy use, atmospheric emissions, water consumption, discharge to water, etc.).
- Indicators on kilometers (traveled and saved) are the responsibility of the Industrial Customers division. Kilometers saved are calculated from sales accounting data for gas produced by on-site units.
- Finally, the estimation of the Group's sales percentage covered by the ISO 9001 quality and ISO 14001 environmental certifications are indicators under the responsibility of the Industrial System Department.

## Controls

Each department in charge of collecting data is responsible for indicators provided. Control occurs at the time of consolidation (review of changes, inter-site comparisons). Safety and energy indicators are included in operational audits of business activities.

In addition, in the process of collecting data in the expanded perimeter, the Safety and Risk Management Department (DMRS) conducted internal audits of environmental data on a sample of sites representative of the various types of units monitored.

Where the data reported makes no sense or is missing, an estimated value may be used by default.

For the second year, and in the spirit of continuous improvement, Air Liquide has asked the Environment and Sustainable Development Department of its statutory auditors, Ernst & Young and Mazars & Guérard, to review the Group's procedures for human resources (excluding employee shareholders), safety and environmental indicators, and to check certain sites or entities on the process of data collection. The review and its findings are presented below. This review process has also given rise to recommendations, communicated within the Group, in order to improve performance in the following year.

## Methodological limitations

Methodologies for reporting on certain human resources, safety, and environmental indicators may present certain limitations, given:

- the absence of recognized definitions at the national or international levels, in particular those indicators concerning engineers and managers;
- the representative character of measurements and the necessary estimates involved. This is particularly relevant for indicators on carbon dioxide emissions avoided, water consumption, kilometers saved by on-site units and the percentage of sales covered by quality or environmental certifications, and indicators regarding training.



# External opinion on human resources, safety and environmental reporting procedures

At the request of Air Liquide, we reviewed reporting procedures of human resources<sup>(1)</sup>, safety and environmental indicators published for the 2004 reporting period and presented in the synthesis of indicators in the following pages.

These indicators were prepared under the responsibility of Air Liquide's executive management, according to the Group's procedures summarized in the previous pages. It is our responsibility to provide you our findings following the review described below.

## Nature and scope of review

As agreed, we carried out the following tasks:

- we reviewed the procedures and their relevance, their completeness and precision with regard to the Group's activities;
- we conducted interviews at headquarters with the departments in charge of the various reporting systems (human resources, finance, risk and safety management, Large Industries, Industrial Customers) to complete our understanding of these procedures and test their implementation;
- we visited six entities to assess the implementation of procedures: the Gaz Industriels Services department, the VitalAire subsidiary, the Claude-Delorme Research Center in France, for human resources

data; and the air gases production unit in Antwerp, Belgium, as well as the cogeneration and hydrogen production units in Rozenburg, Netherlands, for safety and environmental data;

For this review, we referred to on our teams specialized in sustainable development.

In accordance with ISAE international audit standards (International Standard on Assurance Engagements), such a review does not include all the relevant controls for providing assurance on data, but it does allow us to describe findings on reporting procedures.

## Findings on procedures

Based on our review, the findings on procedures are consistent with Air Liquide's methodology overview in the previous pages, in particular with regard to methodology limitations.

Compared with the previous fiscal year, formalization of data-collection procedures has improved. Within the continuous improvement process, internal control of these procedures could be strengthened.

In Paris, March 9, 2005

Éric Duvaud  
Ernst & Young

Philippe Moutenet  
Mazars

(1) Excluding share capital held by Group employees.



# Shareholders

## Growth of net earnings and net earnings per share

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Net earnings (in millions of euros)	406	423	471	516	563	652	702	703	726	778
Net earnings per share (in euros) <sup>(1)</sup>	3.63	3.74	4.17	4.56	5.00	5.81	6.34	6.42	6.68	7.20

(1) Based on the average annual number of shares (excluding treasury shares) and adjusted to account for increases in capital and share subscriptions.

## Growth in overall distribution to shareholders

Fiscal year	Overall distribution in euros
1995	143,627,763
1996	160,123,309
1997	179,476,216
1998	205,141,753
1999	221,705,489
2000	281,772,221
2001	298,089,761
2002	330,455,564
2003	327,486,475
<b>2004</b>	<b>391,189,742</b>

## Evolution of registered capital and number of shares with bonus dividend since implementation in 1995

Fiscal year	Registered capital (in %)	Number of shares with bonus dividend
1995	40%	10,162,287
1996	43%	19,063,625
1997	38%	23,110,575
1998	35%	25,539,055
1999	32%	24,087,590
2000	30%	24,944,295
2001	29%	23,315,671
2002	27%	24,489,228
2003	28%	24,266,063
<b>2004</b>	<b>30%</b>	<b>25,876,746</b>

## Evolution of share ownership

	1990	1995	2000	2001	2002	2003	2004
Individual shareholders	65	57	45.4	41.7	39.9	40.5	<b>38.9</b>
Institutional investors	35	43	52.9	55.6	58.4	57.6	<b>59.8</b>
Treasury shares	-	-	1.7	2.7	1.7	1.9	<b>1.3</b>

### Objective

In the last ten years, the growth in value of a portfolio of Air Liquide shares (Total Shareholder Return) has been +11.4% a year, including reinvested dividend, bonus shares and loyalty bonuses granted to registered shareholders. Our goal is to follow this long-term and transparent policy of comprehensive remuneration for shareholders in order to ensure regular growth in the value of their investment.

# Safety and the environment

## Safety indicators for Group as a whole

Safety	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Number of accidents	361	359	234	179	192	214	188	207	164	135	134	167	194	136	<b>135</b>
Accident frequency rate (1)	6.5	6.4	4.3	3.4	3.8	4.2	3.4	3.7	2.9	2.4	2.3	2.8	3.2	2.3	<b>2.3</b>

(1) Number of accidents involving lost time per million hours worked by Group employees. Accidents defined as recommended by the International Labour Office.

### Objective

Our objective is zero accident, in every site, in every region, in every entity.

## Environmental indicators for the Group as a whole

Presented here are the environmental elements most typical of the seven types of production units which characterize the Group's activities:

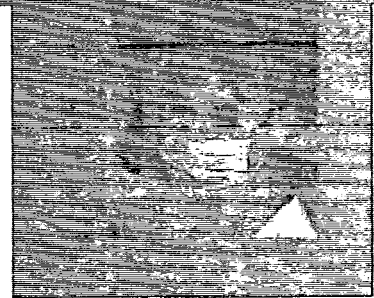
- large air separation, cogeneration, and hydrogen and carbon monoxide units,
- acetylene, nitrous oxide and carbon dioxide liquefaction units,
- production units in the hygiene and specialty activities

## Most relevant environmental indicators for the total of the seven unit types included in the World perimeter

	Perimeter	2003	2004
Total annual electricity consumption (GWh)	World		<b>17,740</b>
Total annual thermal energy consumption (LHV Terajoules)	World		<b>124,702</b>
Total annual water consumption (in millions of m <sup>3</sup> )	World		<sup>(2)</sup> <b>44</b>
Annual amount of CO <sub>2</sub> emissions avoided by cogeneration (in thousands of tons)	World	856	<b>647</b>
Total CO <sub>2</sub> emissions into the atmosphere (in thousands of tons/year)	World		<sup>(3)</sup> <b>5,795</b>

(2) Representing less than 0.5 one-thousandths of the industrial water consumption of the countries under review.

(3) Representing less than 1 one-thousandths of the CO<sub>2</sub> emissions in the countries under review.



### Details on indicators for each of the seven unit types

Worldwide, Air Liquide operates 208 large air separation units. They produce oxygen, nitrogen and argon, with some sites producing rare gases. Since they do not use combustion processes, these units do not produce carbon dioxide (CO<sub>2</sub>), sulfur oxide (SO<sub>x</sub>) or nitrous oxide (NO<sub>x</sub>) emissions, and are thus particularly environmentally friendly. They do consume large quantities of electricity, and their cooling systems require back-up water.

Air separation units	Perimeter	2000	2001	2002	2003	2004
Annual electricity consumption (GWh) (1)	World	14,940	15,421	15,903	16,134 (2)	16,931
Evolution of energy consumption per m <sup>3</sup> of gas produced (3)		100.0	96.6	94.8	93.9	93.1
Annual back-up water consumption (in millions of m <sup>3</sup> )	World					28
Discharge to water: oxidizable matter (tons/year)	World					Below 2,000
Discharge to water: suspended solids (tons/year)	World					Below 2,000

(1) Including small volumes of purchased steam. Figures between 2000 and 2003 have been restated based on the approach adopted for 2004.

(2) Corresponding to an electrical capacity of about 1,900 MW.

(3) Gases produced (oxygen, nitrogen, argon) calculated in m<sup>3</sup> of equivalent gaseous oxygen. Base 100 in 2000.

### Objective

To reduce, within five years, the Group's annual world consumption of electrical energy by air gases separation units, at constant perimeter, by at least 400 GWh, or the home annual consumption of electricity of a city of 180,000 people.



**2** Worldwide, Air Liquide operates 15 cogeneration units. They produce steam and electricity simultaneously much more efficiently than units that generate these two fluids separately, which results in major energy savings. They consume natural gas and water, most of which is converted to steam and then supplied to customers. Most of the steam is condensed by customers and then reused in the cogeneration unit. In most cases, the electricity produced is supplied to the local electricity distribution network. Combustion of natural gas gives off carbon dioxide (CO<sub>2</sub>) and produces some nitrous oxide (NO<sub>x</sub>), but practically no sulfur oxide (SO<sub>x</sub>) emissions. These units replace steam and electricity production units that would have produced more CO<sub>2</sub> emissions. Cogeneration units therefore help reduce CO<sub>2</sub> emissions in the industrial basins they supply.

Cogeneration units	Perimeter	2002	2003	2004
Annual natural gas consumption (or thermal energy) (LHV Terajoules)	World		71,464	<b>74,065</b>
Annual quantities of CO <sub>2</sub> atmospheric emissions prevented through cogeneration (1) (in thousand of tons)	World	740	856	<b>647</b>
Air emissions: CO <sub>2</sub> (carbon dioxide) (in thousands of tons/year)	World		3,930	<b>4,155</b>
Air emissions: NO <sub>x</sub> (nitrous oxides) (in tons/year)	World		4,050	<b>2,060</b>
Air emissions: SO <sub>x</sub> (sulfur oxides) (in tons/year)	World		Below 100	<b>Below 100</b>
Annual water consumption (million m <sup>3</sup> )	World		10	<b>7.9</b>

(1) Calculation takes into account the primary energy source each country uses to produce electricity (International Energy Agency).

**3** Worldwide, Air Liquide operates 30 large hydrogen and carbon monoxide production units. Desulfurization of hydrocarbons to produce fuels of sulfur is one of the main applications for hydrogen. A top application for carbon monoxide is plastics manufacturing. Natural gas is the main material used in these production units, along with certain amounts of "process" water. These units produce carbon dioxide (CO<sub>2</sub>) and entail nitrous oxide (NO<sub>x</sub>) emissions but produce practically no sulfur oxides (SO<sub>x</sub>). They also consume electricity. Their cooling circuits require back-up water.

Hydrogen and carbon monoxide units	Perimeter	2004
Annual thermal energy consumption (LHV Terajoules)	World	<b>50,366</b>
Annual electricity consumption (GWh)	World	<b>479</b>
Air emissions: CO <sub>2</sub> (carbon dioxide) (in thousands of tons/year)	World	<b>1,628</b>
Air emissions: NO <sub>x</sub> (nitrous oxides) (in tons/year)	World	<b>Below 1,000</b>
Air emissions: SO <sub>x</sub> (sulfur oxides) (in tons/year)	World	<b>Below 500</b>
Annual consumption of process and back-up water (in million m <sup>3</sup> )	World	<b>5</b>
Discharge to water: oxidizable matters (in tons/year)	World	<b>Below 50</b>
Discharge to water: suspended solids (in tons/year)	World	<b>Below 500</b>

**4** Worldwide, Air Liquide operates 52 acetylene production units (a gas used mainly in metal welding and cutting). They produce the gas through the decomposition of a solid - calcium carbide - using water. This process produces lime, which is generally sold to industrial customers for use in water treatment plants. Other consumption and discharge is of little significance.

Acetylene units	Perimeter	2004
Annual water consumption (in million m <sup>3</sup> )	World	0.4
Annual calcium carbide consumption (in tons)	World	36,200
Quantity of lime produced (in tons/year)	World	41,900

**5** Worldwide, Air Liquide operates 11 nitrous oxide production units. Nitrous oxide is used nearly exclusively as an anesthetic gas in medicine. It is produced from ammonium nitrate in solid form or as a solution in water. The cooling circuits of these units require back-up water. Other consumption and discharge is of little significance.

Nitrous oxide units	Perimeter	2004
Annual electricity consumption (GWh)	World	6
Annual water consumption (million m <sup>3</sup> )	World	0.1
Annual ammonium nitrate consumption (in tons)	World	25,100
Estimate of loss of nitrous oxide into the atmosphere (in tons/year)	World	800

**6** Worldwide, Air Liquide operates 47 carbon dioxide liquefaction units. Carbon dioxide has many industrial applications but is used mainly in the food industry to deep-freeze foods or produce carbonated beverages. Carbon dioxide is most often a by-product of chemical units operated by other industrial companies. In some cases, it is found naturally in underground deposits. It is purified and liquefied in Air Liquide units, which consume electricity and cooling water in the process.

Carbon dioxide liquefaction units	Perimeter	2004
Annual electricity consumption (GWh)	World	306
Annual water consumption (million m <sup>3</sup> )	World	1.8
Discharge to water: oxidizable matters (in tons/year)	World	Below 100
Discharge to water: suspended solids (in tons/year)	World	Below 100

**7.4** Hygiene and specialty production units are located at seven sites in France, Belgium and Germany. These units consume natural gas, electricity and water. Combustion of natural gas produces small quantities of carbon dioxide.

Hygiene and specialty units	Perimeter	2003	2004
Annual electricity consumption (GWh)	World	17	18
Annual natural gas consumption (LHV Terajoules) (1)	World	217	271
Air emissions: CO <sub>2</sub> (carbon dioxide) (in thousands of tons/year)	World	13	12
Annual water consumption (in million m <sup>3</sup> )	World	1	0.6
Discharge to water: oxidizable matters (in tons/year)	World	Below 1,000	Below 1,000
Discharge to water: suspended solids (in tons/year)	World	Below 100	Below 100

(1) Including steam requirements.

### Transportation indicators

	Perimeter	2003	2004
Kilometers traveled by all vehicles delivering gas in liquid or cylinder form (in millions of km/year)	World	303	325
Estimate of truck transport kilometers avoided through on-site customer units (in millions of km/year)	World	55	54

### Quality and Environmental Certification indicators (2)

	Perimeter (3)	2004
Estimate of the Group's sales % covered by an ISO 9001 Quality Certification	World	65%
Estimate of the Group's sales % covered by an ISO 14001 Environmental Certification	World	14%

(2) The Group's approach to the issue of quality integrates the formalization program for industrial management systems, the Responsible Care commitment and ISO certifications.

(3) Including Messer activities.



# Human resources

## Indicators for the Group as a whole

Employees (1)	2001	2002	2003	2004	
				Excluding Messer	Including Messer
Group employees	30,800	30,800	31,900	<b>33,500</b>	<b>35,900</b>
<b>In 2004</b>					
Distribution of employees by geographic zones	France	Europe (excl. France)	Americas	Asia-Pacific	Africa
Excluding Messer	32%	28%	22%	14%	4%
Including Messer	30%	32%	21%	14%	3%
Age distribution (2)	under 30	30-40	40-50	50-60	over 60
	16%	34%	28%	20%	2%
% employees resigning in the year					<b>3.4%</b>
<b>Diversity parity</b>			2003	2004	
<b>Women</b>					
% women among engineers and managers				14%	<b>17%</b>
% women among engineers and managers hired during the year				24%	<b>31%</b>
% women among employees considered high potential				20%	<b>21%</b>
<b>Number of nationalities</b>					
Among expatriates				36	<b>36</b>
Among senior managers				25	<b>21</b>
Among employees considered high potential				35	<b>37</b>
<b>Training</b>					
% total payroll allocated to training				around 3%	<b>around 3%</b>
Average number of days of training per employee				2.5 days	<b>2.7 days</b>
% employees who attended a training program at least once during the year					<b>67%</b>
<b>Remuneration</b>					
% employees with an individual variable share as part of their remuneration				36%	<b>40%</b>
<b>Performance review</b>					
% employees who have had a performance review meeting with their supervisor during the year				60%	<b>70%</b>
<b>Investment equity</b>					
% capital held by Group employees				0.9%	<b>0.86%</b>
% Group employees shareholders of L'Air Liquide S.A.					<b>Over 40%</b>

(1) Employees under contract, excluding temporary employees.

(2) From this line down, Messer is excluded from all indicators.

Detailed human resources information for L'Air Liquide S.A. is available on request from the "Social Report".



## Objectives

### Diversity

To give ever more say to women in the Group, in particular through recruitment of engineers and managers. Our objective is to increase the hiring of women in this category, from nearly one out of three new hires today to more than two out of five, and this within five years.

### Training

To increase training opportunities so that, within five years, all employees have the chance to enhance their skills and facilitate their advancement through, on average, at least three training days a year.

### Monitoring of performance

In every site, in every region, in every entity, our objective is that 100% of all employees meet their direct supervisor once a year for a performance evaluation interview and meet a manager from the Human Resources Department every three years or so for a career development interview.

# Innovation

## Indicators for the Group as a whole

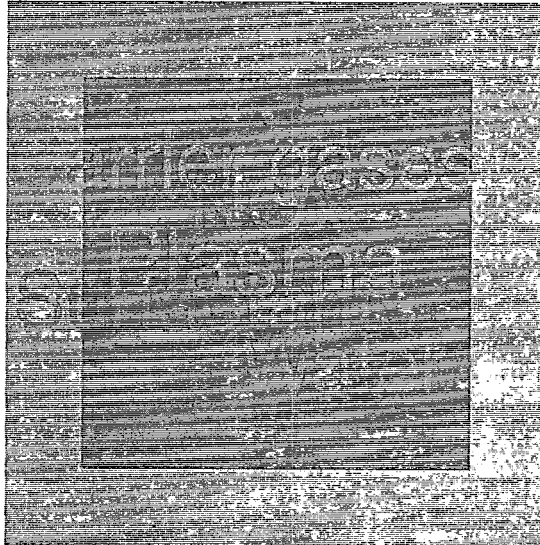
Research	2004	
Budget	150 millions of euros	
Number of researchers	550 from more than 25 nationalities	
Number of research centers	8 (France, Germany, the United States, Japan)	
Industrial partnerships	Over 100	
International collaborations	Over 100 with universities and research institutes	
Patents	2003	2004
New inventions patented during the year	236	225
Patents obtained in the Group's four main zones of operations (*)	105	109

(\*) Europe, the United States, Japan and China.

## Objective

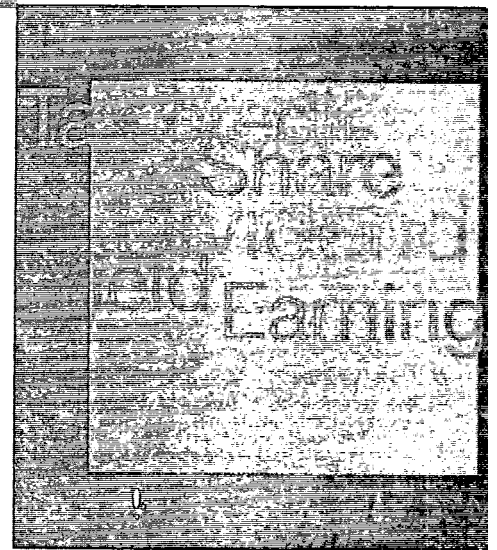
To disseminate innovations within the Group and acknowledge innovators. Within five years, and in the largest number of areas, to obtain over 500 new patents, valid directly in the Group's four main zones of operations: Europe, the United States, Japan and China.

# Glossaries



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# Business glossary

## ■ Adsorption

The retention of gas molecules on a solid surface known as the adsorbent. Adsorption is used either to separate gases (e.g., nitrogen from oxygen) or purify them. For example, water, CO<sub>2</sub> or hydrocarbons may be removed from air gas before separation by a cryogenic air separation unit.

## ■ Aerosoltherapy

The delivery of medications through inhalation. Medications are administered in very fine particles through a nebulizer.

## ■ Arc welding

A welding technique that uses the energy from the electric arc produced between an electrode and the metal workpiece as its source of heat.

## ■ Carrier gases

Carrier gases (e.g., nitrogen, oxygen, and hydrogen, etc.) are used to transport and dilute process gases or to protect semiconductors from minute dust particles.

## ■ Cogeneration

The simultaneous production of steam and electricity. Cogeneration enables more efficient use of primary energy and produces less air pollution, particularly carbon dioxide (CO<sub>2</sub>) emissions.

## ■ Cryoconservation

Conservation, mainly of organic products, at very low temperatures in cryogenic fluids such as liquid nitrogen.

## ■ Cryogenic equipment

Equipment for chilling, producing, transporting, storing and distributing gas at extremely low temperatures.

## ■ Electronics specialty gases

Specialty gases, like silane and arsine, are "process gases" used at each stage of the chip manufacturing process to allow molecular-scale deposits.

## ■ Fab

A plant that makes semiconductors.

## ■ Floxal

Customer on-site nitrogen production service capable of meeting a wide variety of requirements, including purity, consumption profile, pressure and back-up stock. Three technologies are currently used: permeation, which uses polymer membranes, adsorption and cryogenic distillation.

## ■ Fuel cell

A device that combines hydrocarbon or hydrogen with another chemical, usually oxygen, to produce electricity. A hydrogen fuel cell produces electricity and releases only water.

## ■ Gas quenching

Traditional "quenching" consists of plunging metal parts into oil, after they have been heated at a high temperature, to change their mechanical properties. The pieces then have to be washed and the oil recycled. Gas quenching, which uses nitrogen, is an environmentally friendly alternative, since it avoids washing and recycling.

## ■ Greenhouse effect

Just like greenhouse glazing, the earth's atmosphere allows penetration of the sun's rays. When heated by these rays, the earth re-emits infrared radiation, some of which passes back through the atmosphere, but the rest is reflected back towards the earth by "greenhouse" gases in the atmosphere. The main greenhouse gas is carbon dioxide (CO<sub>2</sub>). Reflection of infrared radiation towards the earth maintains its surface temperature. More and more scientists believe that the current heating of the planet is probably the result of an increase in the concentration of greenhouse gases.

## ■ GTL (Gas to Liquid)

The transformation of stranded natural gas into a liquid hydrocarbon. The GTL process, which consumes large volumes of oxygen, provides a solution by converting gases into liquid hydrocarbons free of sulfur, that can be easily transported.

## ■ Membrane/permeation

Similar to the filtration of a liquid through a fabric, permeation of a gas mixture, usually through a polymer-based membrane, allows gases to be separated out. This process is particularly useful in recovering hydrogen from a refinery's waste gases.

### ■ **Metrology**

Metrology consists in the verification and calibration of measurement devices, a critical procedure to operate a production site. Metrology is thus at the heart of customers' production processes.

### ■ **NO<sub>x</sub>**

Nitrous oxides are among the pollutants responsible for acid rain. They are part of automobile emissions and are also produced during all high-temperature combustion operations requiring air. Air is composed mainly of oxygen and nitrogen, which can recombine as nitrous oxides. Replacing air with oxygen avoids the formation of these oxides since nitrogen is not present.

### ■ **On-site production**

Producing industrial and medical gas with equipment installed on the customer's site and operated by Air Liquide.

### ■ **Oxygen therapy**

The treatment of chronic respiratory insufficiency by administering oxygen to patients at home through oxygen cylinders, oxygen extractors using ambient air, or liquid oxygen tanks.

### ■ **Plasma**

A gaseous medium in a highly energized state. Plasma is the fourth state of matter, after solid, liquid and gas. It generally occurs at a very high temperature (several tens of thousands of degrees Celsius) and is produced when an electrical charge is applied to the gas.

### ■ **PPM**

A unit of gas concentration given in parts per million. PPM represents a concentration of one cubic centimeter (cm<sup>3</sup>) of gas in a cubic meter (m<sup>3</sup>).

### ■ **PPT**

A unit of gas concentration given in parts per trillion. One PPT is 1 part in 1,000,000,000,000. One PPT thus represents a concentration of 1 one-thousandth of a cubic millimeter of gas in a cubic meter.

### ■ **Rare gases**

Rare gases are natural, inert gases found in the air we breathe in very small volumes: argon (0.9% of air), neon (0.002%), krypton (0.0001%), xenon (0.00001%).

### ■ **SO<sub>x</sub>**

Sulfur oxides are among the main pollutants responsible for acid rain and certain respiratory illnesses. They are produced during the combustion of hydrocarbons containing sulfur. Hydrogen makes it possible to produce fuels with very low concentrations in sulfur by extracting it from hydrocarbons before combustion.

### ■ **Surfactant**

A surfactant is a chemical capable of associating both with a fat and with water, allowing a wide range of fat-in-water mixtures. Soap is the most common surfactant. Surfactants have a number of applications in industry, cosmetics and healthcare.

### ■ **Sustainable development**

The 1987 report by the U.N. World Commission on Environment and Development defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". In simple language, sustainable development balances long-term wealth creation with social performance and environmental conservation.

### ■ **Synthesis gas or syngas**

A mixture often produced by natural gas or naphtha reformers that contain hydrogen and carbon monoxide in variable proportions depending on the process used. Synthesis gas generally cannot be used without the hydrogen and/or carbon monoxide first being purified. It is used mainly in the chemicals and oil and gas industries.

### ■ **TFT-LCD**

Thin Film Transistor-Liquid Crystal Display are two technologies used to produce graphic screens that use ultrapure gases in a way that's very similar to the manufacture of semiconductors.

### ■ **TGCM**

TGCM (Total Gas and Chemical Management) is an Air Liquide services offer that handles every aspect of gas and liquid chemical management, both before and after production of semiconductors, from procurement, quality control, metering and maintenance to the recycling of gases and waste materials.

### ■ **TGM**

TGM (Total Gas Management) is a services offer identical to TGCM, but it focuses only on gas products.

### ■ **Wafer**

Wafer: a slice of silicon cut from a silicon ingot with a diameter of 150, 200 or 300 mm. Wafers are used as semiconductor substrates.

# Financial glossary

## ■ **Adjusted price**

Share price adjusted to take account of changes in capital (issue of new shares, share split, etc). The adjusted share price is used to produce meaningful comparisons of price changes over time.

## ■ **Bond**

Tradable security issued by a public or private company, a group or a government. Bonds carry fixed interest for a specific period and are redeemable on maturity.

## ■ **Bonus dividend**

Dividend increased by a maximum of 10%, granted to loyal shareholders for all direct shares held continuously for more than two calendar years.

## ■ **Bonus share allocation**

Transaction by which the company issues new shares at no cost to shareholders in proportion to the number of shares already held. Air Liquide has allocated bonus shares on a regular basis.

## ■ **CAC 40**

Stock market index, weighted by the free float, which tracks the 40 most actively traded stocks on the Euronext regulated markets in Paris. Inclusion is based on size and liquidity criteria.

## ■ **Capital gain**

Gain realized on the sale of a security, that is, the difference between its sale price and its original purchase price, or book value.

## ■ **Cash flow**

Cash generated by a company's operations. Cash flow corresponds roughly to after-tax earnings plus depreciation and amortization and minority interests.

## ■ **Capital employed**

Financial resources used by a company to develop its business. It is the sum of equity, minority interests and net indebtedness.

## ■ **Custody account fees**

Fees charged by a financial intermediary for maintaining share records. They generally represent a percentage of the portfolio or a set fee per line of shares held. Air Liquide's Shareholder Services provides this service free of charge for shares held in a direct registered account.

## ■ **Deferred settlement service (SRD)**

Service available for the most traded stocks by which settlement for orders or delivery of shares is deferred to the last trading day of the month. Air Liquide shares are eligible for this service.

## ■ **Dividend**

The part of the company's net profits distributed to shareholders. Shareholders determine the dividend at the General Shareholders' Meeting after approval of the financial statements and the allocation of earnings proposed by the Management Board in agreement with the Supervisory Board.

## ■ **Euronext Paris**

Company that organizes, manages and develops the securities market and acts as market regulator (financial transactions, monitoring of companies listed on the stock market) with the delegated authority of France's Financial Market Authority (AMF).

## ■ **Euro stoxx 50**

Stock Exchange index composed of 50 of the highest capitalizations and most actively traded stocks listed in the eurozone.

## ■ **Face value**

The issue price of a share as defined in a company's Articles of Association. A company's total capital is the face value of the share multiplied by the number of shares in circulation. The face value of the Air Liquide share is 11 euros.

## ■ **French Financial Market Authority (AMF)**

New market authority resulting from the merger of the Stock Exchange Transactions Commission (COB) and the Financial Market Council (CMF). It governs and oversees the conduct and professional ethics of the markets and protects the interests of investors and shareholders.

## ■ **Fractional rights**

Part of a share that cannot be distributed in the case of a bonus share allocation or subscription if the number of shares held is not a multiple of the transaction. Example: in a one for ten bonus share allocation, a shareholder holding 125 shares is allocated 12 new shares and five fractional rights (i.e., the equivalent of half a share).

■ **Free float**

The part of a company's capital in public ownership and tradable on the stock markets. The higher the free float, the greater the liquidity of the shares. 100% of Air Liquide's capital is floated.

■ **Goodwill**

The difference between the acquisition price and the book value of existing equity capital at the date of entry into the Group's perimeter.

■ **Investment club**

Group of 5 to 20 individuals that jointly manages a securities portfolio by making regular payments and sharing the income and capital gains.

■ **Liquidity**

Ratio of the volume of shares traded over the total number of shares in circulation.

■ **Market capitalization**

A company's market value, equal at any given time to the quoted share price multiplied by the number of shares in circulation.

■ **Net earnings**

Profit or loss made by the company. It is calculated by adding operating income, financial income and expenses, earnings of companies accounted for by the equity method and exceptional items, then subtracting taxes and minority interests.

■ **Net Earnings per Share (EPS)**

Net consolidated earnings divided by the number of shares making up the capital.

■ **Operating income**

Annual sales minus the cost of producing, distributing and selling products and the depreciation or amortization of capital expenditures. It indicates a company's ability to generate the margins necessary for its operation and growth.

■ **PER (Price Earning Ratio)**

The ratio of the market price of a share over earnings per share. It is a measure of how many times the share price capitalizes earnings.

■ **Preferential subscription right**

Tradable right giving shareholders priority in subscribing to a number of new shares in proportion to the number of shares already held in the event of a share issue.

■ **Quorum**

Minimum percentage of shares with voting rights required to be present or represented for a General Shareholders' Meeting to be validly constituted.

■ **ROCE (Return On Capital Employed)**

The ratio of net earnings before financial expenses and after taxes over average capital employed. It reflects the net return on funds invested by shareholders and those loaned by banks and financial institutions.

■ **ROE (Return On Equity)**

The ratio of net earnings over shareholders' equity. It represents the net return on money invested by shareholders.

■ **Share**

Tradable security representing a portion of the company's capital. The owner of a share, the shareholder, is a part-owner of the company and enjoys certain rights.

■ **Share buyback**

Transaction by which a company buys its own stock on the market, up to a limit of 10% of its capital. The transaction requires shareholder approval at the company's General Shareholders' Meeting. In compliance with relevant regulations, these shares can subsequently be retained, sold, transferred or cancelled.

■ **Shareholders' equity**

The part of a company's capital belonging to its shareholders. It includes the value of issued shares, retained earnings and earnings for the period.

■ **Tax credit**

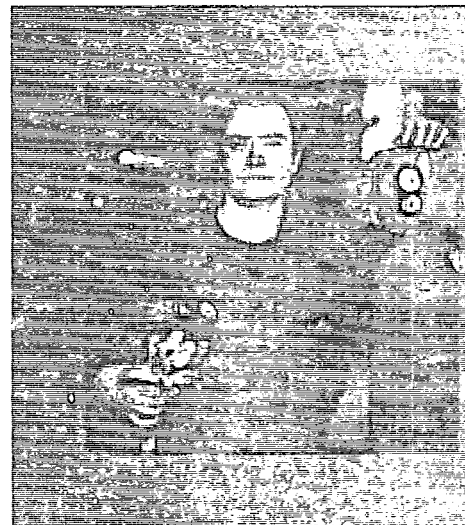
Allowance granted by the French public treasury amounting to 50% of the amount of dividend paid.

■ **Yield**

Ratio of dividend per share over the share market price.



# Supplementary information for the Reference Document



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# General Information

## **General information on L'Air Liquide S.A.**

### **Corporate name and registered offices**

L'Air Liquide, a joint stock company run by a Management Board and a Supervisory Board for the study and application of processes developed by Georges Claude.

Registered offices: 75, quai d'Orsay, 75321 Paris Cedex 07 – France

### **Legal form**

A joint stock company with a Management Board and a Supervisory Board under French law, governed by the Commercial code.

### **Law applicable to L'Air Liquide S.A.**

French law.

### **Foundation and expiry dates**

The Company was founded on November 8, 1902, for a set term expiring on February 17, 2028.

### **Corporate purpose**

The Company's corporate purpose comprises:

1. The study, exploitation, sale of patents or inventions of Messrs. Georges and Eugène Claude, pertaining to the liquefaction of gases, the industrial production of refrigeration, liquid air and oxygen, and the applications or utilizations thereof.
2. The industrial production of refrigeration of liquid air, the applications or uses thereof, the production and liquefaction of gases, and in particular oxygen, nitrogen, helium and hydrogen, the applications and uses thereof in all forms, in blends and combinations, without any distinction as to state or origin, in all domains of the applications of their physical, thermodynamic, chemical, thermochemical and biological applications, and in particular in the domains of propulsion, the sea, health, agri-business and pollution.
3. The purchase, manufacturing, sale, use of all products pertaining directly or indirectly to the foregoing corporate purpose, as well as all sub-products resulting from their manufacturing or their use, of all machines or devices used for the utilization or application thereof and, more specifically, the purchase, manufacturing, sale, use of products, metals or alloys, derived or resulting from a use of oxygen, nitrogen and hydrogen pure, blended or combined, in particular of all oxygenated or nitrogenous products.

4. The study, acquisition, direct or indirect exploitation or sale of all patents, inventions or methods pertaining to the same corporate purposes.

5. The direct exploitation or the exploitation by creating of companies, of everything which is connected, directly or indirectly, with the Company's purpose or is apt to contribute to the development of its industry.

6. The supply of all services, or the supply of all products apt to develop its clientele in the domain of industry or health.

The Company may request or acquire all franchises, make all constructions, acquire or take out on a rental basis all quarries, mines and all real property, and take over all operations connected with its corporate purpose, sell these franchises, assert them, merge or create partnerships with other companies by acquiring shares or company rights, through advances or in any appropriate manner. It may undertake these operations either alone or jointly.

Lastly, and more generally, it may carry out all industrial, commercial, real, personal, financial operations pertaining directly or indirectly to the corporate purposes specified above.

### **Business and company register**

552 096 281 R.C.S. Paris

APE code: 244A

### **Consulting legal documents**

The Articles of Association, Minutes of General Shareholders' Meetings and other company documents may be consulted at Company headquarters.

### **Financial year**

The Company's financial year starts on January 1, and ends on December 31, of the same year.

### **Distribution of profits as provided for in the Articles of Association**

The Company's net proceeds, established in the annual inventory, after deducting the Company's operating expenses, including all amortization and provisions, constitute the net profits.

From these profits, a deduction is made of the amount necessary for paying to the shareholders, as a first dividend, five percent of the sums paid-up on their shares, and not amortized, and five percent of the sums from premiums on shares issued in cash, and appearing in a "share premium" account, without it being possible, if the profits of a given year do not permit this payment, for the shareholders to claim such amounts from the profits of subsequent years.

The General Shareholders' Meeting may decide to earmark any portion of the available surplus of said profits it wishes for the creation of general or special reserve and providence funds, under any name whatsoever or even simply as an amount carried forward.

The balance constitutes a mass which is intended for the distribution of the second dividend as well as the amount provisionally assessed as necessary to pay a 10% increase to registered shares satisfying the following conditions.

As from January 1, 1996, the shares registered as of December 31, of each year in nominative form for at least two years, and which remain registered until the date of the payment of the dividend, will entitle their owners to collect a dividend per share which is 10% higher, rounded down if necessary to the lower centime, than the dividend per share distributed in respect of other shares, provided that the amount of such latter dividend is at least equal to the amount of the dividend per share distributed in the preceding year for such same shares.

In the event that, as from January 1, 1996, the Management Board, with the approval of the General Shareholders' Meeting, decides, after obtaining the approval of the Supervisory Board, to increase the capital by incorporating reserves, profits, or premiums, the shares registered in the nominative form for at least two years on the date on which the allotment process begins will entitle their owners to an allotment of shares which is 10% higher than the allotment made in favor of other shares, and according to the same procedure.

The increases defined in each of the two preceding paragraphs may be modified or eliminated by simple decision of the Extraordinary General Shareholders' Meeting, according to the procedures it determines.

Pursuant to the law, the number of shares eligible for these increases shall not for any given shareholder exceed 0.5% of the Company's share capital.

When the General Shareholders' Meeting decides to distribute sums drawn from the reserves at its disposal, the resolution shall expressly indicate the reserve items from which the drawing is made.

Except in the case of a reduction of the capital, no sums shall be distributed to the shareholders when following such distribution the shareholders' equity is or would fall below the amount of the capital plus the reserves the distribution of which is prohibited by law or by the Articles of Association.

## **General Meetings**

### **Methods of convocation**

The General Shareholders' Meeting is composed of all the shareholders, regardless of the number of shares they own, on the condition that all due payments have been made thereon and that they are not deprived of voting rights.

In accordance with the law and the Articles of Association, only those shareholders who own nominative shares registered in the share account at least five days before the scheduled date of the meeting may take part in the General Shareholders' Meeting, vote by absentee ballot, or be represented at the meeting. The owners of bearer shares who wish to attend, vote by absentee ballot, or be represented at the meeting must therefore, five days before the scheduled date of the meeting, present proof of a registration in account of their share with an intermediary and of the inalienability of these shares until the date of the General Shareholders' Meeting.

However, the Management Board will always, if it deems it suitable, have the right to shorten these periods. It will also be entitled to authorize the sending by electronic mail to the Company of the proxy and ballot forms in accordance with the legal and regulatory conditions in force.

The General Shareholders' Meeting meets each year, as required by law, during the first semester. It may also meet extraordinarily whenever the Management Board or the Supervisory Board deems that it is useful.

Meetings take place at the registered offices or at any other place designated by the author of the notice.

The General Shareholders' Meeting shall be convened and shall deliberate as prescribed by law. Each shareholder shall have as many votes as the voting shares he or she owns or represents, without further restriction, saving as imposed by the law in force.

### **Conditions of use of voting rights**

The voting right attached to a jointly held share is exercised by the usufruct owner in the Extraordinary General Shareholders' Meeting and in the Ordinary General Shareholders' Meeting. There is no double voting rights.

### **Thresholds set by the Articles of Association**

Any direct or indirect owner, acting alone or jointly, of a fraction of the Company's capital or voting rights is obliged to inform the Company within fifteen days beginning on the date of transacting, and independently of the date of the effective transfer of the ownership of the shares, each time a threshold corresponding to 1% of the share capital or the voting rights is crossed, in either direction, including above the 5% threshold.

In the event of a failure to respect this additional obligation of information, one or several shareholders, owning a fraction of the Company's capital or voting rights amounting to at least 1%, may request that the shares exceeding the fraction which should have been declared be deprived of their voting rights for any General Shareholders' Meeting held until the end of a period of two years following the date on which the notice is rectified. The request will be recorded in the Minutes of the General Shareholders' Meeting.

#### Identification of share owners

The Company may avail itself at any time of the legal and statutory provisions in force permitting the identification of the owners of shares as well as the number of shares they own.

## Capital

### Amendment of authorized capital and shareholder rights

#### Increase of authorized capital

The share capital may be increased on one or more occasions, either by contributions in kind or in cash, or by incorporating reserves, premiums or profits, or by converting bonds into shares, or exchanging bonds against shares, or by setting-off liquid or payable claims against the Company or by any other means stipulated by law, pursuant to a decision of the Extraordinary General Shareholders' Meeting voted in the conditions set forth in the Articles of Association. However, if the capital increase is carried out by incorporating reserves, profits or share premiums, the decision is taken on the quorum and majority conditions stipulated for Ordinary General Shareholders' Meetings.

The General Shareholders' Meeting will determine the procedures for increasing the share capital; it may also delegate to the Management Board, without prejudice to the powers of the Supervisory Board determined in by Articles of Association, the powers necessary for carrying out said capital increase, on one or more occasions, determining the procedures thereof, and declaring the completion thereof, and making the correlative amendments to the Articles of Association.

In the event of the issue of new shares payable in cash, and unless otherwise decided by the Extraordinary General Shareholders' Meeting acting in accordance with the conditions stipulated by law, the owners of previously created shares who have made all payments called-up or their assignees, will have a preferential right to the subscription of new shares, in the proportion of the amount of the par value of the shares they own. The parties concerned will be notified of this preferential right in accordance with law.

Regulations drawn up by the Management Board, with the approval of the Supervisory Board, will establish the conditions, deadlines and forms in which the benefit of the provisions of the previous paragraph may be claimed.

#### Reduction of authorized capital

The share capital may also be reduced by decision of the General Shareholders' Meeting, by proposal of the Management Board or the Supervisory Board, in the conditions stipulated by law, or by reimbursing or redeeming shares on the Stock Exchange, or by exchanging existing shares for new shares, in an equivalent or lesser number, with or without the same par value, with or without a cash balance to be paid or received. The General Shareholders' Meeting may always compel the shareholders to sell or purchase existing shares to permit the exchange of existing shares for new shares, with or without a cash balance to pay or receive, even if the reduction decided upon may not be the result of losses.

#### Share capital

As of December 31, 2004, the authorized capital was 1,200,989,053 euros, divided into 109,180,823 shares with a par value of 11 euros each, all of the same class.

### Cancellation of shares and reduction of capital following acquisition by the Company of its own shares

The Combined General Shareholders' Meeting of May 12, 2004, authorized the Management Board to cancel, at its discretion, on one or several occasions, within the limit of 10% of the Company's authorized capital, and per 24-month period, shares purchased under the authorization voted by the Combined General Shareholders' Meeting of May 12, 2004, and those purchased under the authorization voted by the Combined General Shareholders' Meeting of May 15, 2003, and to reduce the capital accordingly.

This authorization is granted for a period of 24 months from the meeting date. Under that authorization, 350,000 shares were cancelled on February 25, 2005.

### Capital authorized but not issued and commitments to authorize capital

The Combined General Meeting of May 12, 2004, granted the Management Board authority for five years to increase the capital, in one or more stages, by a maximum of 2 billion euros, including premiums:

- either by capitalization of reserves, earnings or premiums;
- or by cash subscription, reserved preferentially to holders of existing shares, or to consignees of their rights, where the corresponding authorizations relate exclusively to shares.

This authority was used up to the level of 111,459,788 euros by a bonus share allocation resolved on May 12, 2004, and implemented on June 14, 2004, in the amount of 108,882,147 euros and on July 13, 2004, in the amount of 2,577,641 euros, corresponding to the allocation plus 10%, in compliance with the Articles of Association.

Moreover, the Combined General Meeting of May 12, 2004, gave the Management Board authority, for a period of 38 months, for the purpose of granting to employees and/or officers, subject to the approval of the Supervisory Board, and the Supervisory Board for the purpose

of granting to members of the Management Board, under sections L 225-177 ff. of the Commercial code, options to purchase new shares of the Company to be issued to increase the capital, or shares of Air Liquide repurchased by the Company, provided that the total number of shares for which options are thus granted not exceed 3% of the Company's share capital on the date the options are granted by the Management Board or the Supervisory Board.

The subscription or purchase price of the shares shall not be less than the average of the opening price over the 20 trading days immediately preceding the date on which the options are granted, rounded down to the next euro.

Under this authorization, 35,385 options to purchase Air Liquide shares were allocated at the Management Board meeting of November 30, 2004.

The Combined General Meeting of May 12, 2004, also granted authority to the Management Board, for a period of five years, subject to the approval of the Supervisory Board, to increase the share capital, in one or more transactions by up to 150 million euros, including premiums, through the issue of shares with a par value of 11 euros, for offering, under sections L 443-1 ff. of the Labor code pertaining to Employee Savings Plans, and to section L 225-138 of the Commercial code, to employees of the Company and some of its subsidiaries, within the meaning of section L 225-180 of the Commercial code, provided that such employees have been in the employ of the Company or its subsidiaries for at least three months, and that the number of shares issued does not to exceed 1,000,000.

The offering price shall not be higher than the average of the share price quoted over the 20 trading days immediately preceding the Management Board's decision setting the opening date of the offering and, nor be lower than 80% of that average price.

This authority has not been used.

### **Securities not representing capital**

The Combined General Meeting of May 12, 2004, authorized the Management Board, for a period of five years, to issue one or more debentures amounting to a maximum of 4 billion euros, in one or more stages, at the times and on the terms that it deems fit.

To date, the Group has issued debentures for a total of 1 billion euros.

### **Other securities giving access to capital**

#### **Convertible bonds**

The Combined General Meeting of May 12, 2004, authorized the Management Board, for a period of five years, in one or more stages, both in France and abroad, to issue bonds convertible to shares worth a maximum of 1,500 million euros, either in euros or in foreign currency or in currency units set in reference to several currencies. Shareholders' preferential rights are maintained.

This authority has not been used.

#### **Share subscription options**

As of December 31, 2004, the number of adjusted options outstanding, allocated and not yet exercised, was 3,775,531.

## Trend in capital over the past five years

Issue date	Nature of transaction	Number of shares created	Cumulative number of shares	Capital increase	Issue premiums and reserves	Capital amount
<i>(in euros except for shares)</i>						
29 Feb 00	Exercise of share subscription options	437,171	82,868,169	4,808,881	30,292,847	911,549,859
04 May 00	Exercise of share subscription options	4,419	82,872,588	48,609	227,878	911,598,468
04 May 00	Bonus share allocation (one for ten)	8,287,258	91,159,846	91,159,838	(91,159,838)	1,002,758,306
19 July 00	Bonus share allocation (one for ten) Loyalty premium	225,381	91,385,227	2,479,191	(2,479,191)	1,005,237,497
01 Mar 01	Exercise of share subscription options	58,341	91,443,568	641,751	3,722,286	1,005,879,248
01 Mar 01	Cancellation of acquired shares	(575,529)	90,868,039	(6,330,819)	(69,943,267)	999,548,429
04 Apr 01	Cancellation of acquired shares	(424,471)	90,443,568	(4,669,181)	(51,235,439)	994,879,248
29 Dec 01	Increase of capital reserved for employees	300,823	90,744,391	3,309,053	36,700,406	998,188,301
18 Jan 02	Exercise of share subscription options	82,502	90,826,893	907,522	5,392,170	999,095,823
25 Feb 02	Cancellation of acquired shares	(1,500,000)	89,326,893	(16,500,000)	(208,682,216)	982,595,823
30 Apr 02	Exercise of share subscription options	25,499	89,352,392	280,489	1,589,828	982,876,312
30 Apr 02	Bonus share allocation (one for eight)	11,169,049	100,521,441	122,859,539	(122,859,539)	1,105,735,851
15 Jul 02	Bonus share allocation (one for eight) Loyalty premium	269,951	100,791,392	2,969,461	(2,969,461)	1,108,705,312
10 Jan 03	Exercise of share subscription options	27,049	100,818,441	297,539	1,615,735	1,109,002,851
25 Feb 03	Exercise of share subscription options	2,768	100,821,209	30,448	157,084	1,109,033,299
25 Feb 03	Cancellation of acquired shares	(1,000,000)	99,821,209	(11,000,000)	(123,464,901)	1,098,033,299
15 May 03	Fusion with COFIGAZ	1,868	99,823,077	20,548	110,949	1,098,053,847
26 Jan 04	Exercise of share subscription options	98,639	99,921,716	1,085,029	5,633,424	1,099,138,876
27 Feb 04	Cancellation of acquired shares	(1,000,000)	98,921,716	(11,000,000)	(118,723,907)	1,088,138,876
12 May 04	Exercise of share subscription options	62,055	98,983,771	682,605	3,719,905	1,088,821,481
12 May 04	Bonus share allocation (one for ten)	9,898,377	108,882,148	108,882,147	(108,882,147)	1,197,703,628
13 Jul 04	Bonus share allocation (one for ten) Loyalty premium	234,331	109,116,479	2,577,641	(2,577,641)	1,200,281,269
21 Jan 05	Exercise of share subscription options	70,369	109,186,848	774,059	5,902,371	1,201,055,328
25 Feb 05	Exercise of share subscription options	3,193	109,190,041	35,123	319,081	1,201,090,451
25 Feb 05	Cancellation of acquired shares	(350,000)	108,840,041	(3,850,000)	(41,812,039)	1,197,240,451

Since 1996, each allocation of bonus shares entails two capital increases: the first corresponds to the new shares allocated to all existing shares. This takes place on the date of resolution by the Management Board to proceed with the transaction, authorized by the Supervisory Board. The second corresponds to the new shares allocated as a loyalty premium, only to shares registered continuously for more than two years. This takes place on the date of recording of completion of the transaction by the Chairman of the Management Board.

## Market for the Company's shares

### Place of listing

L'Air Liquide S.A. shares are listed only in Paris on the Eurolist of Euronext regulated market, ISIN code FR0000120073 and are eligible for the Deferred Settlement Service.

### Other listed securities of L'Air Liquide's consolidated subsidiaries and affiliated companies

Société d'Oxygène et d'Acétylène d'Extrême-Orient, listed in Paris under ISIN code FR0000031171.

Séchillienne-Sidec, listed in Paris under the ISIN code FR0000060402.

## Share performance

### Stock price over the past 18 months

Prices are adjusted to take into account the allocation of one bonus share for ten held, effective June 14, 2004.

Month <i>(in euros)</i>	Securities exchanged during month	Close	High	Low
Sept 03	9,854,064	110.27	124.73	109.27
Oct 03	8,779,642	115.91	119.27	108.55
Nov 03	8,137,510	121.82	123.64	116.18
Dec 03	7,351,678	127.27	128.09	120.46
Jan 04	8,401,861	122.46	129.00	119.09
Feb 04	6,322,024	129.64	131.91	121.46
Mar 04	7,725,143	125.91	132.27	122.00
Apr 04	8,695,215	132.82	138.46	125.73
May 04	8,981,125	131.64	135.00	126.36
June 04	11,148,279	135.90	138.50	129.55
July 04	6,182,307	134.50	138.20	130.00
Aug 04	7,119,836	128.60	134.00	122.50
Sept 04	7,853,704	126.30	133.70	125.80
Oct 04	7,878,869	126.60	131.80	124.00
Nov 04	6,593,112	130.10	134.70	126.40
Dec 04	8,301,755	136.00	136.50	128.60
Jan 05	8,315,611	131.90	138.10	129.60
Feb 05	7,444,664	135.70	137.90	131.20

### Stock Exchange price and trading volume

Year	Daily averages				
	Number of securities	Capital <i>(in thousands of euros)</i>	High <i>(adjusted)</i>	Low <i>(adjusted)</i>	Close
2000	227,598	32,807	131.50	94.91	128.40
2001	335,843	52,570	143.03	105.13	127.19
2002	421,246	62,170	145.46	101.46	114.27
2003	429,685	55,075	128.09	95.46	127.27
2004	367,580	49,994	138.50	119.09	136.00

## Dividends

Year (in euros)	Paid	Net Dividend (1)	Tax credit	Total income	Number of shares	Distribution
2000	05/10/01	3	1.5	4.5	91,429,644	274,288,932
		0.3	Bonus dividend (2) 0.15	0.45	24,944,295	7,483,289 <b>281,772,221</b>
2001	05/07/02	3.2	1.6	4.8	90,821,483	290,628,746
		0.32	Bonus dividend (2) 0.16	0.48	23,315,671	7,461,015 <b>298,089,761</b>
2002	05/21/03	3.2	1.6	4.8	100,818,441	322,619,011
		0.32	Bonus dividend (2) 0.16	0.48	24,489,228	7,836,553 <b>330,455,564</b>
2003	05/18/04	3.2	1.6	4.8	99,912,917	319,721,335
		0.32	Bonus dividend (2) 0.16	0.48	24,266,063	7,765,140 <b>327,486,475</b>
2004	05/17/05	3.50 (3)	(4)	3.50	109,180,823	382,132,881
		0.35 (3)	Bonus dividend (2)	0.35	25,876,746	9,056,861 <b>391,189,742</b>

(1) Ordinary dividend paid on all shares.

(2) Bonus dividend paid only on shares registered continuously for two calendar years.

(3) Subject to the approval at the General Shareholders' Meeting of May 11, 2005.

(4) The dividend paid out for the 2004 fiscal year does not carry an *avoir fiscal* (special French tax credit), but gives rise to a 50% allowance instead, as provided for in section 158-3 subsection 2 of the Tax code.

# Responsibility for Reference Document and statutory auditors

## Person responsible for the Reference Document

Benoît Potier, Chairman of the Management Board of L'Air Liquide S.A.

## Certification of person responsible for the Reference Document

"To the best of my knowledge, the data contained in this Reference Document are true. They contain all the information investors need in order to assess the assets, activities, financial situation, profits and prospects of L'Air Liquide S.A. and its Group, and omit nothing that might alter their implications."

Benoît Potier  
Chairman of the Management Board

## Report of the statutory auditors on the Registration Document (*Document de Référence*)

*(Free translation of a French language original)*

In our capacity as statutory auditors for L'Air Liquide S.A. and in compliance with Article 211-5-2 of the AMF General Regulation, we have verified, in accordance with French professional standards, the information in respect of the financial position and historical financial statements included in the accompanying Registration Document.

This Registration Document is the responsibility of the Chairman of the Management Board who signed this document. Our responsibility is to issue a conclusion on the fairness of the information contained therein with respect to the financial position and financial statements.

MAZARS & GUÉRARD

Frédéric ALLILAIRE

The statutory auditors

ERNST & YOUNG Audit

Jean-Claude LOMBERGET

We conducted our examination in accordance with French professional standards. This examination consisted in assessing the fairness of the information on the financial position and financial statements and to verify their consistency with the audited financial statements. We also read other financial information contained in the Registration Document in order to identify any significant inconsistencies with information in respect of the financial position and financial statements and to bring to your attention any obvious misstatements we noted based on our general understanding of the Company gained through our audit. The prospective information presented by management is based on their intentions and not on a properly prepared individual component or item.

We issued an unqualified opinion on the annual and consolidated financial statements drawn up by the Management Board in compliance with accounting rules and principles applicable in France and for the year ending December 31, 2004, in accordance with French professional standards.

RSM Salustro-Reydel and Ernst & Young Audit issued an unqualified opinion on the annual and consolidated financial statements drawn up by the Management Board in compliance with accounting rules and principles applicable in France and for the years ending December 31, 2003, and 2002, in accordance with French professional standards.

On the basis of our examination, we have nothing to report on the fairness of the information on the financial position and the financial statements included in the Registration Document.

Paris-La Défense, April 8, 2005

The Registration Document also includes the following reports:

- The statutory auditors' report on the annual and consolidated financial statements as of December 31, 2004 (shown respectively on page 20 of the 2004 "Rapport Social" incorporated by reference and on page 137 of the Registration Document) which include the basis of their assessment in accordance with Article L.225-235 of French company Law (*Code de Commerce*);
- In accordance with Article L.225-235 of French company Law (*Code de Commerce*), the statutory auditors' report (on page 148 of this Reference Document) on the report prepared by the Chairman of the Supervisory Board of L'Air Liquide S.A. that describes the internal control procedures for the preparation and treatment of accounting and financial information.



# Cross-referencing schedule for the Reference Document

The Reference Document includes this Annual Report and the Social Report for 2004. To facilitate reading of the Annual Report filed as Reference Document, the following schedule will help identify the main information required by the *Autorité des Marchés Financiers* (French Financial Market Authority) under its regulations and instructions for implementation.

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The present Reference Document was registered on April 8, 2005, with the *Autorité des Marchés Financiers* (AMF), in compliance with sections 211-1 to 211-42 of its General Regulation. It can be used in support of financial operations when a note of operation stamped by the *Autorité des Marchés Financiers* complements it.

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# Ten-year consolidated financial summary

	Notes	1995	1996	1997	1998	1999
Key figures in millions of euros						
Net sales		4,907.2	5,241.5	5,851.3	6,087.6	6,537.7
Of which Gas and Services		4,102.4	4,324.3	4,959.9	5,194.2	5,694.0
Operating income		649.1	663.2	782.5	847.6	935.0
Net earnings		405.7	422.7	471.1	515.6	562.7
Funds from operations (cash flow)		860.9	910.0	1,013.5	1,156.5 (6)	1,308.4
Payments on industrial investments		548.4	887.3	1,173.2	1,222.5	1,129.4
Payments on financial investments		117.2	157.8	95.3	211.6	309.0
Distribution	(1)	143.6	160.1	179.4	205.2	221.7
Shareholders' equity at year-end		3,398.5	3,759.1	4,171.5	4,346.9	4,926.8
Net indebtedness at year-end		525.2	842.0	1,258.6	1,676.8	2,432.7
Capital						
Number of shares issued and outstanding		66,279,226	73,117,927	73,156,045	82,921,825	82,862,583
Adjusted number of shares	(2)	111,601,187	112,939,222	113,003,564	113,006,560	112,509,903
Results per share in euros						
Net earnings per share	(3)	3.63	3.74	4.17	4.56	5.00
Dividend per share		2.13	2.13	2.38	2.40	2.60
Total dividend (including tax credit)		3.20	3.20	3.57	3.60	3.90
Dividend adjusted per share		1.25	1.38	1.54	1.75	1.90
Ratios						
Return on equity (ROE)	(4)	12.4%	11.8%	11.9%	12.1%	12.1%
Return on capital employed after tax (ROCE)	(5)	11.5%	11.0%	10.5%	10.1%	9.6%

Bonus dividend: Since 1995, a bonus dividend equal to 10% of the dividend has been allocated to shares registered for more than two years as of December 31, preceding the allocation year, and held until the date of the payment of the dividend. In 2004, the bonus dividend amounts to 0.35 euro per share (no dividend tax credit is included), representing a total amount of 9.1 million euros.

(1) Without withholding tax of 8.7 million euros in 2003, 83.9 million euros in 2002, 68.0 million in 2001, 36.1 million in 2000, 26.2 million in 1999, 19.2 million in 1998, 13.6 million in 1997, 13.7 million in 1996, 8.8 million in 1995 and including a surplus dividend of 9.1 million euros in 2004, 7.8 million euros in 2003, 7.8 million in 2002, 7.5 million in 2001, 7.5 million in 2000, 6.3 million in 1999, 6.1 million in 1998, 5.5 million in 1997, 4.1 million in 1996 and 2.2 million in 1995.

(2) Adjusted to account for the weighted number of shares outstanding resulting from stock dividends declared in 2004, 2002, 2000, 1998, 1996 and 1994, stock offerings (from 1995 to 2004) and treasury shares.

(3) Calculated on the adjusted weighted number of shares outstanding during the year (excluding treasury shares).

	Notes	2000	2001	2002	2003	2004
Key figures in millions of euros						
Net sales		8,099.5	8,328.3	7,900.4	8,393.6	9,376.2
including Gas and Services		7,113.6	7,256.7	6,887.0	7,388.5	8,275.2
Operating income		1,116.0	1,177.6	1,161.6	1,196.0	1,276.9
Net earnings		651.8	701.9	703.2	725.6	777.5
Funds from operations (cash flow)		1,564.3	1,627.4	1,514.1	1,542.2	1,694.9
Payments on industrial investments		910.2	769.8	632.8	746.8	875.4
Payments on financial investments		104.8	332.4	306.9	74.9	2,858.5
Distribution	(1)	281.8	298.1	330.5	327.5	391.2
Shareholders' equity at year-end		5,285.9	5,353.3	5,219.3	5,079.2	5,373.6
Net indebtedness at year-end		2,280.3	2,583.5	2,022.3	1,730.2	3,790.3
Capital						
Number of shares issued and outstanding		91,429,644	90,821,483	100,818,441	99,912,917	109,180,823
Adjusted number of shares	(2)	112,214,133	110,736,776	109,477,929	108,624,523	107,937,967
Results per share in euros						
Net earnings per share	(3)	5.81	6.34	6.42	6.68	7.20
Dividend per share		3.00	3.20	3.20	3.20	3.50
Total dividend (including tax credit)		4.50	4.80	4.80	4.80	3.50
Dividend adjusted per share		2.41	2.57	2.90	2.90	3.50
Ratios						
Return on equity (ROE)	(4)	12.8%	13.2%	13.4%	14.1%	14.9%
Return on capital employed after tax (ROCE)	(5)	10.5%	10.7%	10.8%	11.6%	11.3%

(4) Return on equity: (Net earnings)/(weighted average of shareholders' equity).

(5) Return on capital employed after tax: (Net earnings after taxes and before minority interests - financial income (expense) after taxes)/weighted average over the period of (shareholders' equity + minority interests + net indebtedness).

(6) Excluding the net capital gain of 38.3 million euros from divesting the hydrogen peroxide business.

**Design and production**

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**Written by:** Françoise Lafrayette

**Photos:** Air Liquide thanks its employees who collected or contributed to the photographs in this Annual Report.  
Cryospace, Japan Air Gases, Jean-Louis Etienne-Clipperton Expedition, Agence africaine de presse,  
Jeff Heger, M. Meszarovits, Studio Pons, X. Renauld, Le Square, X.

**Illustration:** F. Mathé, Publicis Consultants Paris, WAG

## Calendar 2000

- April 21** First Quarter Sales  
General Shareholders' Meeting  
at the Palais des Congrès - Paris
- May 19** Lille: Air Liquide Village
- May 24** Toulouse: Air Liquide Village
- June 7** Montpellier: Information Meeting organized  
by the FFCI (French Federation of Investment  
Clubs)
- July 23** Half year Sales
- September 6** Half year Earnings
- October 4** Clermont-Ferrand:  
Information Meeting organized by the FFCI
- October 26** Third Quarter Sales
- November 18-19** Salon Actionaria (a shareholders' fair)  
at the Palais des Congrès - Paris
- November 22** Rennes: Information  
Meeting organized by the FFCI
- December 6** Biarritz: Information Meeting  
organized by the FFCI

### Corporate Communications

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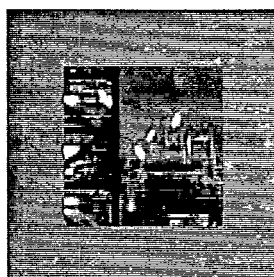
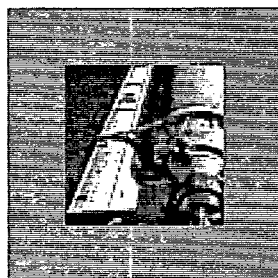
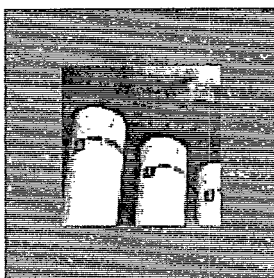
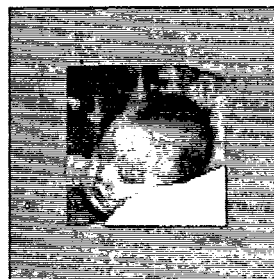
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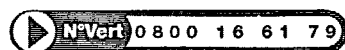
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### Information on your shares and direct registered shares



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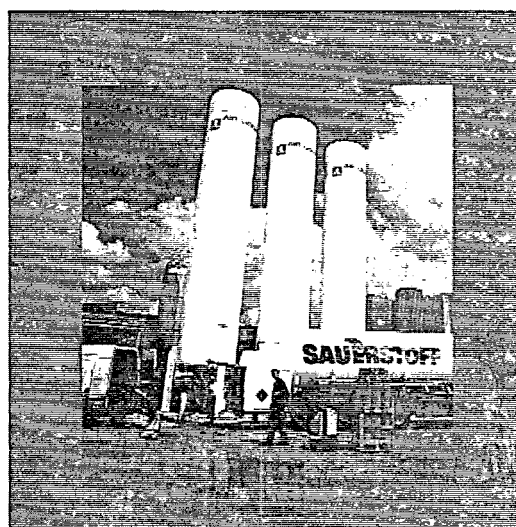
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Shareholder Services  
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L'Air Liquide S.A.  
run by a Supervisory Board and  
a Management Board established  
for the study and application  
of processes developed  
by George CLAUDE with issued  
capital of 1,197,240,451 euros

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# Management Report



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# Key figures for the Group

The year 2004 marked a return to steadier growth in the Group's key businesses, particularly with rapid development of hydrogen and emerging Asia, and renewed momentum in the markets in the United States, and Healthcare in Europe. This growth was reinforced by the successful acquisition and integration of Messer activities.

In this context, the Group has delivered a further increase in profits for 2004, whilst maintaining margins, thanks to its renewed productivity initiatives.

Furthermore, strong cash flow and a selective approach to investment ensure continued financial strength, with debt levels lower than anticipated and very good return on capital employed.

Overall, 2004 was a milestone year for Air Liquide. In light of this good performance and a favorable outlook, the Management Board is proposing a significant dividend increase.

*In millions of euros*

	2003	2004	2004/03	2004/03 (excl. forex)	2004/03 (excl. forex and excl. Messer)
Total sales	8,394	9,376	+11.7%	+14.5%	+7.1%
<i>of which Gas and Services sales</i>	7,389	8,275	+12.0%	+15.0%	+6.6%
Operating income before depreciation/amortization	2,005	2,191	+9.3%	+12.0%	+6.4%
Operating income	1,196	1,277	+6.8%	+9.2%	+7.1%
Group consolidated net earnings	726	778	+7.1%	+9.6%	+9.4%
Funds from operations (cash flow)	1,542	1,695	+9.9%	+12.6%	
Net earnings per share*** (in euros)	** 6.68	7.20	+7.8%	+10.3%	
Dividend per share (in euros)	** 2.90	3.50	+20.7%		
Return on capital employed after tax (ROCE)	11.6%	11.3%			

\* And excluding natural gas price variation, and impact of consolidation of Asian activities.

\*\* Adjusted to take into account the bonus share issue in June, 2004.

\*\*\* Number of shares outstanding as of December 31, 2004, for net EPS calculation: 107,937,967.

## Sales

**Consolidated sales** for 2004 reached 9,376 million euros, an increase of +11.7% over 2003, including the acquired Messer activities (471 million euros over eight months) for +5.6%.

Excluding foreign exchange, natural gas and the consolidation impact of Messer and subsidiaries in Singapore and Hong Kong, the increase was +7.1%.

## Group results

**Operating income before depreciation and amortization** was 2,191 million euros, an increase of +9.3% and of +12.0% excluding foreign exchange. This result was delivered with margins maintained. Productivity initiatives undertaken with the launch of the OPAL program and pricing action enabled the Group to fully offset increased costs stemming principally from energy and the implementation of new IT systems.

After depreciation and the amortization of the goodwill attributable to the Messer acquisition, operating income amounted to 1,277 million euros, an increase of +9.2%, excluding foreign exchange.

Margins (ratio of operating income to sales) were therefore maintained at 14.1% (excluding natural gas and Messer) compared with 14.2% in 2003.

Following the acquisition of Messer activities, financed entirely by debt, **net financial expenses** stood at 143 million euros versus 106 million euros in 2003. Excluding this acquisition, financial expenses fell significantly (-17%) reflecting lower cost of debt.

The contribution from **companies accounted for by the equity method** was 37 million euros, a decrease of 13 million euros, following the consolidation by the proportional method of SOAEO's subsidiaries in Singapore and Hong Kong in 2004.

**Other expenses** amounted to -68 million euros, compared with -50 million euros in 2003. In particular, these include provisions for restructuring.

Proceeds from divested Messer activities contributed 32 million euros to earnings, including net capital gains from divestments.

The **effective tax rate** decreased to 27.5% from 29.6% in 2003, partly due to ongoing tax optimization efforts, particularly in Europe.

**Minority interests** increased by +14% owing to very good results from Japan Air Gases, which saw the benefits of synergy plans initiated in 2003 achieved a year ahead of schedule.

Overall, **Group consolidated net earnings** was 778 million euros, an increase of +7.1% (+9.6% excluding foreign exchange). As announced, the contribution of Messer activities consolidated since May had a neutral impact on results for the year.

In 2004, the Group bought back 339,743 shares (adjusted for the 2,500 shares issued in June, 2004) amounting to a total of 44.4 million euros, i.e. an average price of 130.60 euros.

### Statement of changes in financial position and balance sheet

**Funds from operations** (cash flow) were 1,695 million euros, an increase of +12.6% excluding foreign exchange. This is in line with operating income growth before depreciation and amortization. In total, funds from operations (cash flow) represent 18% of sales.

**Capital expenditures** amounted to 998 million euros over the year (excluding the Messer acquisition), up compared with 2003 owing to investment decisions for growth made during the past two years. In 2004, the ratio of capital expenditures to sales was 10.6%.

In 2004, the Group's **investment decisions** totaled 1,200 million euros, reflecting numerous commercial successes across all geographic zones and in markets with strong potential.

After increased working capital, share buybacks and conversion impact, **net indebtedness** was 3,790 million euros, representing a decrease of almost 1 billion euros since June, 2004, ahead of the Group's expectations.

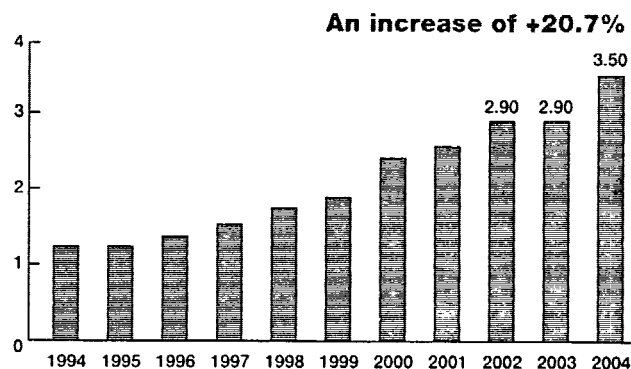
The **ratio of net indebtedness to shareholders' equity** was therefore 66% as of December 31, 2004, a better level than anticipated. Following the Messer acquisition, the Group's financial structure continues to be very strong.

As of December 31, 2004, **return on capital employed after tax (ROCE)** was 11.3% versus 11.6% in 2003. Excluding the acquisition of Messer activities, return on capital employed was 12.2%.

### Dividends

At the General Shareholders' Meeting on May 11, 2005, a **dividend** of 3.50 euros will be proposed to shareholders for fiscal year 2004, amounting to a distribution rate of 50.3% of consolidated net earnings.

**Dividend per share: €3.50\***



(\* 2004 dividend proposed at the General Shareholders' Meeting. Dividends for previous years are adjusted to take into account bonus share issues.

### Average annual growth over ten years

Dividend per share: +11%

Total shareholder return: +11%

### At year-end 2004

Distribution rate: 50%

Share yield: 2.6%

### Total shareholder return of an investment in Air Liquide shares

Total shareholder return (TSR) is an annualized rate of return for shareholders who purchased a share at the beginning of the period and sold it at the end of the period.

TSR calculation factors in the change in share price and dividends paid (including tax credit), assuming they are reinvested in shares right away.

This return is a percentage equal to the share yield (dividend/share price) added to the capital gains rate (capital gains over the period/initial share price).

For L'Air Liquide S.A., net earnings before exceptional items reached 384 million euros, compared with 328 million euros in 2003.

# Acquisition of Messer activities in Germany, the United Kingdom and the United States

Announced on January 20, 2004, the acquisition of Messer activities in Germany, the United Kingdom and the United States was finalized on December 3, within a short time frame of 11 months, including approvals from the competition authorities and the realized divestments.

This acquisition is consistent with the Group's strategy to strengthen its position in industrial gas activities through both organic and external growth, and through targeted and profitable opportunities.

Current customers of acquired Messer activities in the countries concerned will benefit from Air Liquide's global network and expertise in technological innovation through an enlarged offer of products and services.

This acquisition also allows Air Liquide to strengthen its position in several key markets:

- **In Germany:** the acquired Messer activities give Air Liquide a broader and more solid base. These activities (sales of approximately 455 million euros) benefit from a strong and well-established presence in Germany's industrial basins, particularly in the Ruhr and Rhine areas. Its business is very complementary to Air Liquide's existing activities, which are strong in the eastern and northern parts of Germany. Air Liquide thus gains access to a solid, balanced portfolio of customers in a broad range of sectors.
- **In the United Kingdom:** Messer's focused activities (sales of approximately 70 million euros) make it an important player in the British bulk carbon dioxide market. They complement the Group's existing expertise in the food and beverage industry, one of the key growth sectors for Air Liquide.
- **In the United States:** a major distributor of liquid gas, Messer (sales of approximately 255 million euros) was established mainly in the North and East, an industrial region that accounts for more than 50% of industrial production in the United States. This geographic presence complements Air Liquide's existing activities – located mainly in the western and southern regions of the United States – enabling the new entity to strengthen its position as a national player and broaden its ability to benefit its customers.

## Integration and teams

Beyond the quality of the teams and the acquired assets, Messer's overall expertise is very complementary to the Group's.

The Management teams of the new entity were designated on the basis of their respective skills.

Klaus Schmieder, former Chairman of the Management Board of Messer, has joined the Air Liquide Group as Executive Vice-President and member of the Management Board. He is responsible for overseeing and coordinating Gas and Services operations in Europe, excluding Large Industries and Healthcare.

The operational integration of acquired activities has made significant progress thanks to the work of teams put in place as early as March, 2004.

## Key figures

*In millions of euros*

	Acquired sales*	Sales after required divestments*
Germany	660	455
United States	310	255
United Kingdom	70	70
<b>Total</b>	<b>1,040</b>	<b>780</b>
Initial acquisition amount including acquisition costs		2,736
Final amount after divestments		2,037
Synergies		100

\* On the basis of estimated sales figures for 2003, calculated using 2003 exchange rates, over 12 months.

### **Calendar of the acquisition of Messer activities**

■ **January 20:** proposed acquisition of Messer activities announced

■ **March 15:** the European Commission approves the proposed acquisition subject to divestments

■ **April 29:** the Federal Trade Commission (FTC), the U.S. competition authority, approves the proposed acquisition of Messer, subject to the divestment of some acquired liquid gas units

■ **May 6:** closing of the acquisition

The Group concludes its acquisition following the finalization of financing by the Messer family for the retained businesses.

■ **June 29:** sale of Messer activities to be divested in the United States

The Group signs an agreement with Matheson Tri-Gas, Inc. (a subsidiary of Nippon Sanso) for the sale of liquid gas activities to be divested in the United States in compliance with the Consent Order signed on April 29, 2004, between Air Liquide and the FTC, to meet antitrust requirements. The activities divested represent around 60 million dollars in sales for a sale price of 155 million dollars. Included in the results for 2004, divestments were realized on the basis of a sales multiple approximately equal to the acquisition price multiple.

■ **September 21:** Air Liquide signs an agreement with Tyczka for the sale of carbon dioxide activities to be divested in Germany

Air Liquide signs an agreement with the German company Tyczka, a leading player in the European liquefied petroleum gas (LPG) market. This divestment represents sales of 10 million euros in 2003. The transaction is based on a sales multiple slightly higher than the acquisition price multiple.

■ **October 7:** Air Liquide signs an agreement with Praxair for the sale of Large Industries, bulk and cylinder activities to be divested in Germany

The agreement, pending approval of German competition authorities, amounts to sales of about 180 million euros in 2003.

In total, the combined proceeds in Germany amount to 530 million euros (including the sale of carbon dioxide activities to Tyczka). This was achieved on the basis of a sales multiple higher than the total acquisition price multiple.

■ **November 2:** completion of the divestment of activities to Matheson Tri-Gas, Inc. in the United States with the final approval of the Federal Trade Commission

■ **November 4:** completion of the sale of carbon dioxide activities to be divested in Germany with the final approval of the European Commission

■ **November 24:** Air Liquide signs an agreement to sell its interest in MNS to Taiyo Nippon Sanso

Air Liquide signs an agreement to sell its 51% interest in MNS Nippon Sanso to a newly established subsidiary of Nippon Sanso Corporation.

■ **December 3:** completion of the acquisition of Messer activities

Air Liquide finalizes the acquisition of Messer activities with the final approval from European and German competition authorities for the sale to Praxair of certain activities in Large Industries, bulk and cylinder gas to be divested in Germany.

After the required divestments, the total net investment is 2 billion euros for acquired sales of around 780 million euros, in line with the Group's original estimates.

In addition, on October 29, 2004, Air Liquide announced the sale of its 90% interest in GT&S, an entity specialized in cylinder gases and a Messer subsidiary in the United States. This transaction was undertaken for strategic reasons and is in addition to the divestments required by U.S. competition authorities. The interest in GT&S has been purchased by an entity controlled by the previous minority owner of GT&S, for an amount close to 2003 annual sales, or approximately 80 million dollars.

### Financing of the acquisition

This acquisition, which represented an initial investment of 2.7 billion euros, was financed by external debt. Initially (in May, 2004), the acquisition was financed by issuing commercial paper in euros and by short-term bank debt in US dollars. This debt was entirely secured with confirmed back-up lines of credit negotiated specifically for this transaction. Thus, Air Liquide benefited from low-cost financing without any liquidity risk. This initial financing gave the Group a wide degree of flexibility as it awaited proceeds from the divestment of assets previously agreed to. As a second step, Air Liquide refinanced part of this short-term debt by long-term sources in the bond market and bank financing for a total of 1,420 million euros. At the end of June, 2004, L'Air Liquide S.A. carried out two bond issues under its EMTN program (500 million euros maturing in 2010 and 500 million euros maturing in 2014). L'Air Liquide S.A. also issued a private placement of 130 million euros maturing in 2012, and its subsidiary American Air Liquide issued private placements in the United States for 400 million US dollars (three tranches maturing in 2009, 2011 and 2012).

The divestments in the second half of 2004 reduced the short-term commercial paper outstanding and the bank debt in the United States, by around 700 million euros. In parallel, the long-term lines of credit were reduced at the end of the year in proportion to lower short-term financing following the long-term refinancing and proceeds from divestments. The overall impact of this acquisition on the Group's net indebtedness, after taking into account divestments, acquisition costs and financial charges, is around 2 billion euros, of which 72% are financed by long-term debt, and 28% by commercial paper secured with long-term lines of credit.

Following this acquisition, Air Liquide retains a quality credit rating. In May, 2004, Standard and Poor's, the credit rating agency, gave Air Liquide a long-term rating of "A+/-negative outlook" and a short-term rating of "A1". Moody's attributed a short-term rating of "P1".

### Cost of the acquisition debt and hedging of the interest rate risk

A favorable financing environment with low interest rates, as well as its rating, helped Air Liquide to finance the acquisition at a competitive rate of around 3.3% over 2004. In order to maintain this financing rate over the long term, Air Liquide kept a part of the euro long-term financing at fixed rate, and took advantage of the historically low short-term rates (2% in 2004) on the short-term portion of the debt. Anticipating the rise in short-term US dollar rates towards the end of 2004, and which continues in 2005, Air Liquide protected itself by taking medium and long-term hedges on its debt denominated in US dollars.

### Impact on the financial statements

In the 2004 financial statements, Messer activities were consolidated for eight months from May 7, 2004, onwards.

Contribution to consolidated sales from retained activities amounts to 471 million euros.

The impact on the balance sheet includes indebtedness due to the acquisition, re-evaluated net assets and the resulting goodwill.

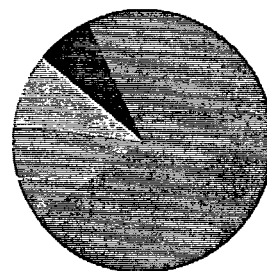
The operation is accretive, before amortization of goodwill from the first year of consolidation.

*In millions of euros*

	Messer's contribution in 2004
Sales	471
Operating income before depreciation/amortization	112
Amortization/depreciation	(86)
<i>including amortization of goodwill</i>	<i>(25)</i>
Operating income	26

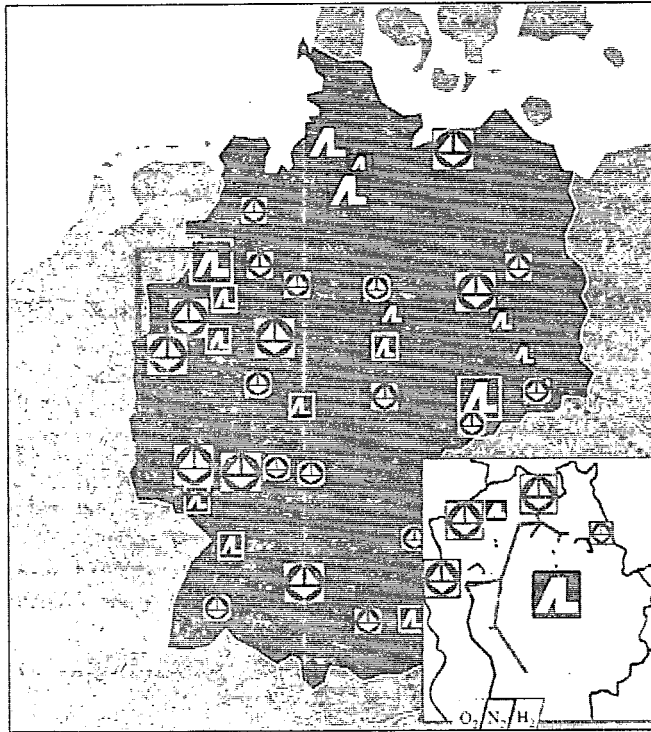
### Synergies

#### The distribution of €100 M of synergies



Synergies following the integration of Messer activities will amount to 100 million euros over three years. The Group figures that 50% of synergies will be achieved in 2005.

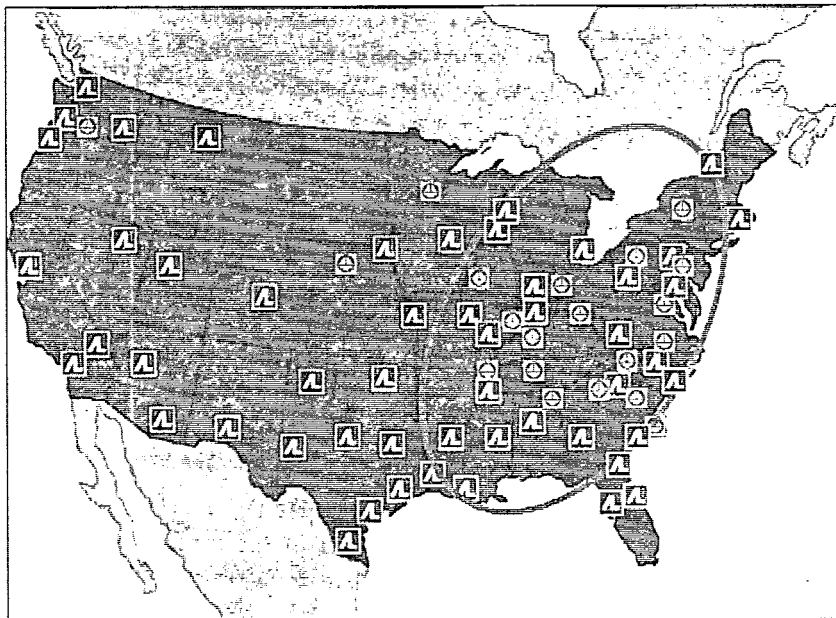
**Germany: n° 2 in the first European economy**  
**Sales in 2004 pro forma for a full year: €900 M**



**United Kingdom: a targeted presence**  
**Sales in 2004 pro forma for a full year: €70 M**



**United States: n° 3 close to the n° 2**  
**Sales in 2004 pro forma for a full year: €1,600 M**



Air Liquide activities



Retained Messer activities

# Activities and investments

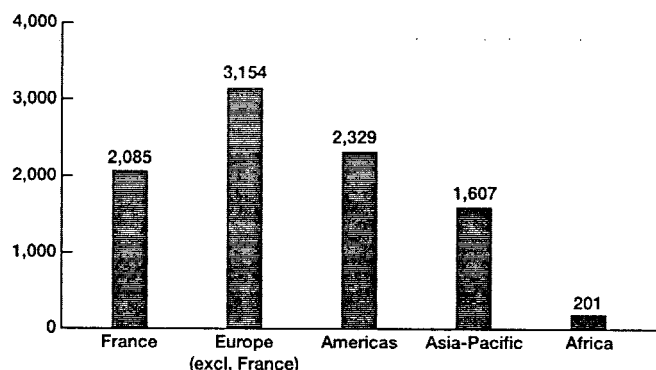
The year 2004 was very significant for Air Liquide, due to the acquisition and successful integration of Messer activities which enhances the Group's core business in Europe and the United States, and the delivery of accelerated growth which confirms the Group's strategy.

As a result, the Group has recorded strong consolidated sales growth for the year. Hydrogen activities have developed strongly and both homecare and service businesses have confirmed their ability to deliver sustainable growth. In 2004, Air Liquide grew in all markets in Europe, the United States, and Asia, and particularly in China, demonstrating the Group's new momentum.

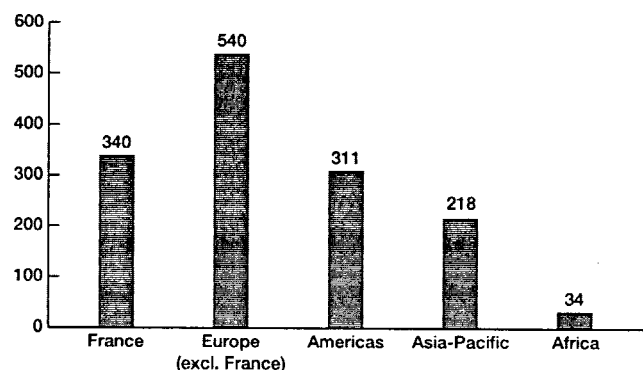
In 2005, these positive trends should continue with the further development of the growth drivers and the Group's geographic expansion.

## Analysis by geographic zone

### Sales by geographic zone (in millions of euros)



### Operating income by geographic zone <sup>(1)</sup> (in millions of euros)



(1) Excluding research centers and corporate overheads (-166 million euros).

## Europe

Air Liquide's activities in Europe achieved significant growth, despite a weaker economic environment. This is the result of the Group's strategy of developing new markets: hydrogen, healthcare and services. The integration of Messer in Germany is progressing favorably, with a new organizational structure fully in place since January 1, 2005.

In Large Industries, hydrogen capacity was tripled, with the start-up of units in France, Spain and Belgium. Products and services in Healthcare are recording sustained growth. Industrial Customers are benefiting from the integration of enlarged offer and services.

The continued ramp-up of large contracts and the Group's developments in its Healthcare businesses ensure good prospects for 2005.

In a moderate economic environment, operating income in Europe (including France) increased. This growth was linked in particular to good results in Northern Europe, in Large Industries and Healthcare.

## Americas

The Americas performed well with high utilization rates of the Group's capacity and new developments sustaining its future performance.

In North America, Industrial Customers registered a significant increase in liquid volumes, benefiting from higher demand due to the favorable economic environment in most markets. Activity in Large Industries was sustained throughout the year and a very large 100,000 m<sup>3</sup>/hour hydrogen unit was started up in the fourth quarter in California, a new basin for Air Liquide. Important contracts won in 2004 in hydrogen and Electronics and the integration of Messer will enable the Group to sustain its momentum in the American continent over the next two years.

Growth in operating income was very sustained, with a significant increase in margins, driven in particular by volumes in the United States and productivity initiatives.

## Asia-Pacific

2004 was a strong year for the Asia-Pacific zone and all businesses are growing. The ramp-up of large contracts, notably in South Korea, and the dynamic semi-conductor market (particularly for flat screens) underpinned this performance. In Japan, activity was stronger at the end of the year thanks notably to Electronics and a better fourth quarter in Industrial Customers. Best performances were seen in other Asian countries, with very significant growth in China and South Korea.

The outlook for the Group's activities in the zone remains very favorable, with the start-up of large contracts and recent investments in Electronics and Large Industries which increased significantly, in line with the Group's strategy.

In Asia-Pacific, operating income recorded very strong growth linked to rising volumes in emerging Asia and the completion of synergies from Japan Air Gases

## Africa

In 2004, Air Liquide recorded a satisfactory growth in sales and higher margins. South Africa and Egypt, recently included within the Group's perimeter, performed best in terms of activities and return.

### Capital intensity

Capital intensity is the amount of capital needed to generate one euro in sales. This capital is either invested into industrial assets (production unit, storage, truck, etc.), or used as working capital to finance the development of the activities.

Capital intensity in the Group's business lines varies:

- air gases production in Large Industries is very capital intensive with a capital intensity between 2 and 3;
- hydrogen or cogeneration services currently have a capital intensity close to 1, given the high price of natural gas in particular;
- Electronics, Healthcare, and value-added services, all major development drivers, also have a capital intensity around or below 1 depending on product mix.

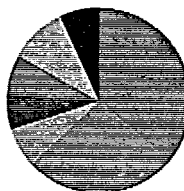
Whatever the capital intensity, Air Liquide's objective is to achieve, over the long term, return on capital employed after tax of at least 12% (ROCE).

## Gas and Services (excluding Messer)

### Industrial Customers

*In millions of euros*

2004 Sales	3,834
Capital intensity	1.5 to 2



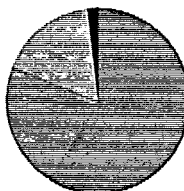
■ Liquid gasses	36%
■ Cylinder gasses	27%
■ On-site	7%
■ Services	6%
■ Pure and mixed gasses	7%
■ Equipment and installations	10%
■ Other	7%

### Large Industries

*In millions of euros*

2004 Sales	2,261
Capital intensity*	1.5 to 2.5

(\*) At 2004 average natural gas price.

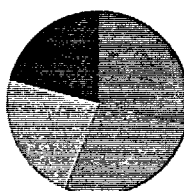


■ Air gasses	59%
■ H <sub>2</sub> /CO	22%
■ Cogeneration	17%
■ Other	2%

### Electronics

*In millions of euros*

2004 Sales	884
Capital intensity	1 to 1.2



■ Carrier gasses □	29%
■ Specialty gasses □	27%
■ Services and liquid chemicals □	23%
■ Equipment and installations □	21%

### Healthcare

*In millions of euros*

2004 Sales	1,296
Capital intensity	0.8 to 1.2



■ Homecare	39%
■ Hospital	38%
■ Hygiene	16%
■ Equipment	7%

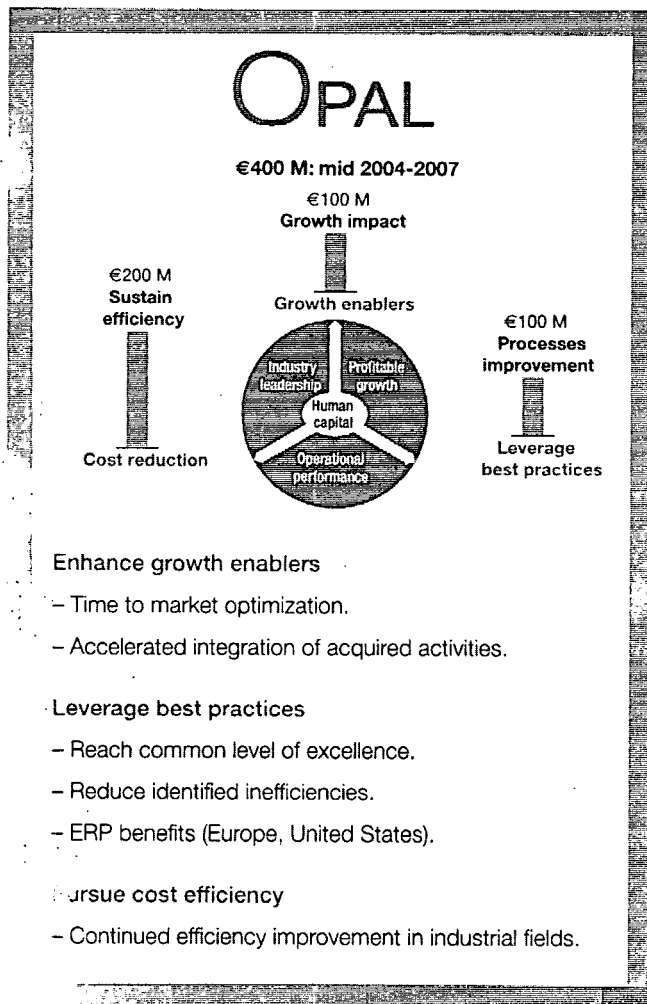


## New productivity program

In 2004, Air Liquide launched a three-year action plan to strengthen sales growth and improve operating income.

The program is based on three key goals: accelerating time to market for the Group's products and services, leveraging best practices, and constantly improving efficiency.

This program should generate approximately 400 million euros in improved performance throughout all Group activities by 2007.



## Competition

Air Liquide's main competitors in industrial and medical gases are the American groups Praxair and Air Products, the British group BOC, the German group Linde and two smaller groups: Taiyo Nissan (Japan) and Airgas (United States).

In December, 2004, Air Liquide completed the acquisition of the Messer activities in Germany, the United Kingdom, and the United States with the approval of competition authorities in Europe and the United States.

Before and after this acquisition, Air Liquide is the world leader in industrial and medical gases.

## Delivering growth strategy

The Group's strategy is firmly focused on growth:

- Air Liquide's strategy in the industrial gas sector is **unique** as it combines **balance of activities, geographic presence, and resource mix**. This strategy leads to targeted investments equal to 11% to 13% of sales;
- Earnings each year result from the combination of **growth in sales and continuous gains in productivity** within the Group;
- **Financial discipline** is driven by **ambitious goals**: the return on capital employed after tax (ROCE) should in permanence attain or exceed 12%; the ratio of net indebtedness to shareholders' equity remains between 35% to 50%;
- Delivering **sustained, long-term shareholder returns** is a **priority**. The total shareholder return (TSR) rate in the last ten years has been over 11%.

## 2005 Outlook

Following 2004, which marked an important stage in Air Liquide's development, the Group's financial strength is maintained and 2005 has begun in a positive trend, due to:

- Focus on **profitable growth in emerging economies**;
- **Development** of the Group's key **growth drivers**: hydrogen, Asia, Electronics, homecare and hygiene in Europe;
- Integration of Messer activities within a **new European framework**;
- Achievement of **50% of anticipated Messer synergies** in 2005.

Air Liquide's business successes over the past three years and dynamic growth drivers position the Group to target, once again, a growth rate in net earnings in 2005 at least comparable to that published in 2004.

## Investments decisions and capital expenditures

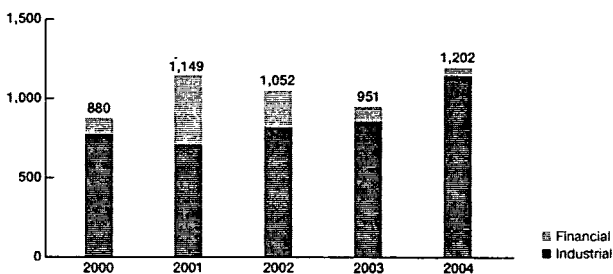
Investment decisions have always been a key element of the Group's strategy as they:

- develop the business through both internal and external growth,
- improve efficiency and quality, and
- ensure safety and reliability.

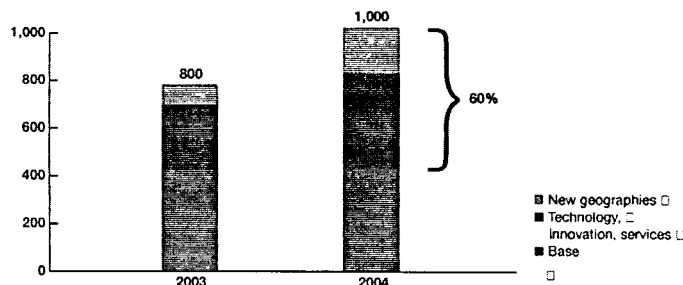
The economic objective of these investments is to facilitate sustainable growth by improving the returns on capital employed. The required level of the internal profitability may vary with the overall assessment of the risks associated with the investment. Investments in long-term contracts, for instance, generate weaker levels of profitability in the first few years, because the customer's needs increase gradually, while the contract bears the depreciation (linear over the life of the contract) and financial expenses over the same period. Profitability levels increase rapidly thereafter.

The Group's decision to enlarge its offer resulted in a number of commercial successes between 1995 and 1997, which in turn led to accelerated investment decisions. During this period, the Group committed approximately 3.5 billion euros to industrial investments, two-thirds of which were linked to long-term contracts. This was three times the investments made between 1992 and 1994. These decisions resulted in 68 large units between 1997 and 2000 and generated significant capital expenditures until 1999. Following this development period, Air Liquide has continued, over the past four years, to invest at a rate of approximately 1 billion euros a year. Today, the Group has over 250 units on the five continents.

**Investment decisions (in millions of euros) (excluding Messer)**



**Gas & Services investment decisions (excluding Messer) (in millions of euros)**



In 2004, investment decisions amounted to 1,202 million euros (excluding the acquisition of Messer's activities in Germany, the United Kingdom and the United States), a +15% increase over the average of the last three years. This increase resulted from new contracts secured during the year. Emerging geographies accounted for 200 million euros of the Group's total investment decisions, while growth markets, such as hydrogen, energy, Electronics and Healthcare accounted for 400 million euros. These strategic development drivers accounted for 60% of the Group's industrial investments.

Three significant successes were achieved in China where the Group will supply air gases on a long-term basis to two major steel makers in the Shandong area, as well as to a flat screen producer based in Beijing. In hydrogen, Air Liquide secured a major contract in Bayport, Texas, and therefore strengthened its position at the heart of Houston's refinery basin.

These investment decisions are subject to a careful evaluation process, undertaken at Group level by the Investment and Operations Committee chaired by a member of the Management Board together with directors of relevant zones and activities.

Decisions are based on rigorous individual assessments of projects, using five main criteria:

- **The location of the contract:** the analysis will differ whether the project is based in an industrial basin with high potential (Corpus Christi in the United States, Antwerp in Belgium, Caojing in China), or connected to an existing pipeline network, or else found in an isolated location;

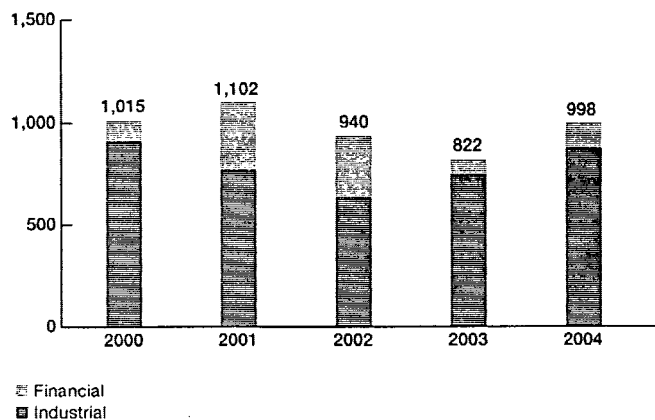
- **The nature of the product provided:** the analysis of risks and expected profitability will vary in the case of air gases, relying on the Group's traditional technologies, or new products such as hydrogen and synthetic gas, which occasionally rely on more innovative technologies;

- **Customer risk:** this is measured according to whether the customer is local or global, and takes into account the customer's market and stability;

- **Competitiveness of the site or gas-dependent activity:** this is assessed based on size, the cost of raw materials and access to markets;

- Finally, country risk is studied carefully.

**Capital expenditures (in millions of euros)  
(excluding Messer)**



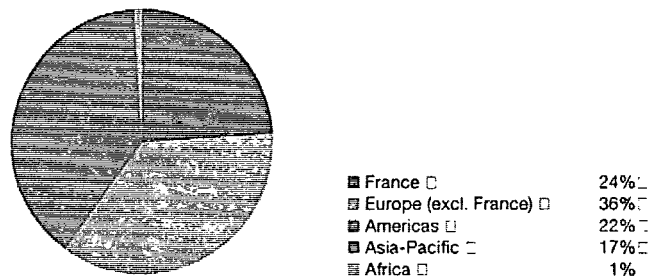
In 2004, **industrial capital expenditures** reached 875 million euros compared with 747 million euros in 2003. This increase reflects the ramp-up in investment decisions between 2002 and 2004 in Air Liquide's growth markets (notably hydrogen and emerging Asia). By geographic zones, Europe excluding France accounted for 39% of these investments, France 22%, the Americas 21%, Asia 17% and Africa 1%.

**Financial capital expenditures** totaled 2,859 million euros including the acquisition of the Messer activities in three countries during the year. Excluding this acquisition, expenditures amounted to 123 million euros compared with 75 million euros in 2003. For the most part, these expenditures were linked to the buyback of minority interests in the United States and in Asia, as well as the acquisition of Livingston, a major player in the field of metrology, which has strengthened the services pole in Europe.

In total, the ratio of capital expenditures (excluding the financial investment tied to the Messer acquisition) to Group total sales was 10.6% in 2004 compared with 9.8% in 2003.

In 1999, with the gradual increase in sales generated through large projects and the Group's policy of selective investments, the Group's return on capital employed (ROCE) has increased notably. In 2004, return on capital employed after tax was 12.2% (excluding Messer) compared with 11.6% in 2003. Including the acquisition of Messer, return on capital employed was 11.3%, a good performance given the size of this strategic transaction.

**Capital expenditures by geographic zone  
(excluding Messer)**



**The lifespan of a long-term contract**

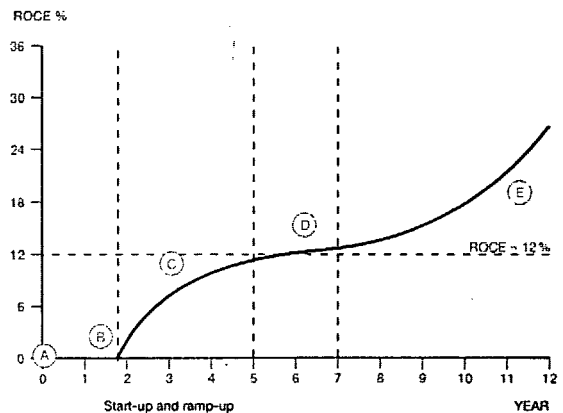
Stage A: an investment decision follows the signing of a long-term contract.

Stage B: capital expenditures begin as Air Liquide builds the unit for the customer(s) over 18-24 months.

Stage C: the unit starts up and gas production increases progressively. Sales begin and will continue over the course of the contract term.

Stage D: between years five and seven, the contract reaches an average return on capital employed (ROCE) of 12%, in line with Group objectives.

Stage E: after 15 years, aside from maintenance expenses and renewed investment, the unit is mostly depreciated. At this point, the return on capital employed grows significantly.



# Financial policy

## Financial risk management

Risk management is a priority for the Group. As for financial risk management, Air Liquide has set up a Finance Committee that includes members of the Management Board, the Finance Director, and representatives from the Finance Department. The Committee's role is to establish financial, treasury and financing risk policies and monitor their implementation. The Finance Committee reports to the Audit and Accounts Committee of the Supervisory Board.

The Finance Department manages the main financial risks centrally, based on the decisions of the Finance Committee, to which it reports quarterly. The Finance Department also performs the analysis of country and customer risks and provides input on these risks at Investment and Operations Committee meetings.

## Foreign exchange risk

In the industrial gas industry, most products are not exported but are produced in the country where they are invoiced. There is thus little risk of currency fluctuations affecting the Group's competitiveness. Foreign currency variations only affect operating income when financial statements are translated into euros. The effect of the two main foreign currencies – US dollars (USD) and yen (JPY) – is as follows:

### Impact of variation of +/- 1% in foreign exchange rate:

*In millions of euros*

	Sales	% Group	Operating income	% Group
USD	19.7	0.21	2.3	0.18
JPY	9.7	0.10	1.0	0.08

The geographic distribution of operating income by currency is as follows:

	2003	2004
Euro zone	54%	51%
US and Canadian dollar zones	23%	24%
Yen zone	8%	8%
Other	15%	17%

Transactions involving patent royalties, technical support and dividends require the exchange of foreign currency between Group companies. The related exchange risk is handled as part of the Finance Department's hedging policy.

In Engineering and Construction, the Group hedges transactions on a case-by-case basis. The instruments used are mainly currency forwards or options with first-grade counterparties. The breakdown of the hedging portfolio by currency and instrument is shown on page 96.

The Group raises debt in the currency of the cash flows. This provides a natural hedge and reduces the Group's exposure to exchange rate variations. In countries outside the euro, US dollar and yen zones, financing is raised in either local or foreign currency (EUR or USD) when contracts are indexed in euros or US dollars – which is often the case for Large Industries projects.

As part of intra-group multi-currency financing, the Central Treasury Department converts the debt raised in financial markets into various currencies to refinance subsidiaries in their functional currencies. The breakdown of this hedging portfolio is shown on page 96.

The following table shows the impact of foreign exchange swaps on Group net indebtedness as of December 31, 2004:

*In millions of euros*

	Gross debt before hedging	Short-term loans, marke- table securities and cash	Hedging (foreign exchange swap contracts)	Net indeb- tedness adjusted after hedging	Fixed assets
EUR	3,671	(544)	(409)	2,718	5,657
USD	522	(64)	300	758	2,098
JPY	177	(12)	58	223	548
CAD <sup>(1)</sup>	8	(9)	96	95	380
Other currencies	197	(156)	(45)	(4)	1,552
<b>Total</b>	<b>4,575</b>	<b>(785)</b>	<b>0</b>	<b>3,790</b>	<b>10,235</b>

(1) Canadian dollar.

A portion of the euro debt raised on the markets (409 million euros) was converted to other currencies to refinance foreign subsidiaries. For instance, of the Group's US dollar gross debt of 822 million (758 million of net indebtedness plus 64 million of excess cash), 522 million euros were raised directly in US dollars and 300 million euros were raised in euros and converted to US dollars using foreign exchange swap contracts.

## Interest rate risk

### Principles

Air Liquide interest rate risk management on its main currencies - euro, US dollar, Canadian dollar and yen - is centralized. These currencies represent approximately 97% of total gross debt. For other currencies, the Finance Department advises the subsidiaries on hedging their foreign currency exposure in accordance with the local financial market regulations. The Finance Committee determines the fixed rate/floating rate ratio for each currency and approves the hedging instruments used.

The Group's objective is to reduce the impact of interest rate fluctuations on its financial expenses and earnings and, by adopting a principle of prudence, to provide backing for long-term fixed assets with shareholders' equity and fixed-rate long-term debt. Since most of Air Liquide's activities are based on long-term contracts (10 to 15 years), a policy promoting interest rate hedging (fixed rates and options) provides good visibility on the financing cost when deciding long-term investments.

### Sensitivity to interest rate fluctuations

The Group's net indebtedness exposed to interest rate fluctuations amounted to 1,650 million euros as of December 31, 2004 (39% of the gross debt adjusted for short-term securities), compared with 870 million euros at year-end 2003 (41% of the debt).

The increase in the amount of net indebtedness exposed to interest rate fluctuations is due to the acquisition of Messer activities in Germany, the United Kingdom and the United States. Given the Group's policy to hedge interest rate risks, the proportion of the debt exposed to rate interest fluctuations is stable at around 40%.

An increase or decrease in interest rates of 100 bp (+ or -1%) on all yield curves would have an impact of about + or -16.5 million euros on the Group's annual financial charges before tax, assuming outstanding debt remains constant.

Also, the Group contracted optional interest rate hedges (caps), triggered if interest rates increase significantly (above 3.90% for EUR and 3.80% for USD). If those hedges are triggered, assuming constant outstanding debt, consolidated net indebtedness exposed to interest rate fluctuations would drop by about 1,000 million euros to 650 million euros. Sensitivity of financial charges would then be reduced to 6.5 million euros.

The Group does not hold derivatives for trading purposes. All hedging instruments used to manage interest rate or foreign exchange risk relate to identified risks.

## Counterparty risk

Potential counterparty risks for Air Liquide include:

- Customers;
- Bank counterparties.

The Group has more than one million customers in a broad range of industries, dispersed over an extensive geographic area, thus precluding any concentration of customer credit risk. As an illustration, the sales to Air Liquide's top ten customers represent less than 15% of total sales.

To better assess its exposure, the Group has adopted procedures to regularly monitor the financial position of its major customers and analyze outstanding balances.

Moreover, customer risk assessment is an important component in the investment decision process, and the Audit and Accounts Committee is regularly updated on this subject.

Bank counterparty risk relates to the outstanding amounts of derivatives and to outstanding lines of credit contracted with each bank. Based on its financial policy, the Group requires a long-term Standard & Poor's "A" rating or a Moody's "A2" rating from its counterparties. The Group's lines of credit are also spread among several banks to avoid risk of concentration. The Finance Committee regularly checks and approves the list of financial instruments and banks.

## Funding

### Funding policy

All funding decisions are subject to the Group's financial policy, which is implemented and supervised by the Finance Department.

The Finance Committee determines the annual and multi-year goals of the funding policy for all subsidiaries and monitors its application.

To better identify its funding activities, Air Liquide has established a French subsidiary, Air Liquide Finance, that manages most of the Group's interest rate and foreign exchange risks, and funding transactions.

Air Liquide has access to various financing sources in many markets and can therefore optimize financial expenses by choosing the financing best suited to its needs while focusing on liquidity. Air Liquide relies on short-term commercial paper, in France through a French Commercial Paper program to a maximum of 3 billion euros, and in the United States through a US Commercial Paper program (USCP) to a maximum of 1.5 billion US dollars. In line with the Group's internal policy, outstanding commercial paper issuances are backed up with confirmed lines of credit.

In addition, Air Liquide can issue bonds through its long-term Euro Medium Term Note (EMTN) program to a maximum of 3 billion euros. Outstanding notes under the EMTN program amount to 1.8 billion euros, of which 1 billion euros were issued in 2004 to finance the Messer acquisition. In addition, the Group raises bank debt (loans and bilateral lines of credit) and private placements. The average maturity of debt is five years.

### Breakdown of debt

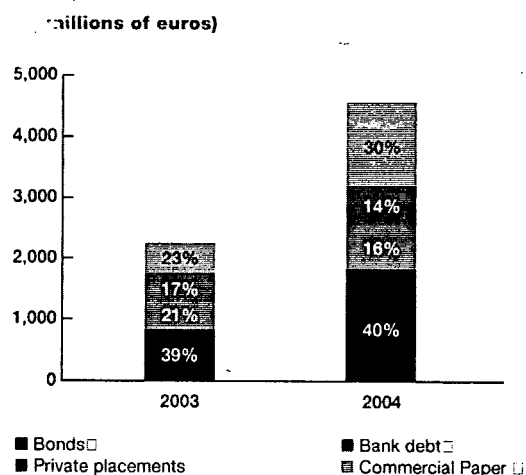
As per the Group's policy of diversifying sources of financing, the debt is spread over several types of instruments (capital and bank debt markets). The first source of financing is long-term bonds under the EMTN format, which represents 40% of the debt.

In 2004, the main long-term financing transactions involved the acquisition of Messer activities:

- 1 billion euros in EMTN on the Eurobond market (in two tranches of 500 million euros maturing in 2010 and 2014);
- 400 million US dollars in private placements issued by American Air Liquide, a fully-owned subsidiary of the Group (three tranches maturing in 2009, 2011 and 2012);
- 130 million euros in private placement maturing in 2012.

In addition, the Japanese subsidiary JAG contracted a five-year credit line of 20 billion JPY (about 140 million euros).

### Gross debt distribution by instrument type



In millions of euros

Net indebtedness	Currency of issue	12/31/03	12/31/04
<b>Total bonds</b>		<b>838</b>	<b>1,839</b>
Bonds 2005-2009	EUR	38	39
EMTN at 5% - 2007	EUR	200	200
EMTN at 4.125% - 2010	EUR	0	500
EMTN at 5.25% - 2011	EUR	300	300
EMTN at 4.125% - 2013	EUR	300	300
EMTN at 4.75% - 2014	EUR	0	500
<b>Total private placements</b>		<b>453</b>	<b>746</b>
Private placements - 2008	EUR	50	50
Private placements - 2009	EUR	120	120
Private placements - 2012	EUR	0	130
Private placements - 2004	USD	103	0
Private placements - 2007	USD	135	135
Private placements - 2009	USD	0	147
Private placements - 2011	USD	0	73
Private placements - 2012	USD	0	73
Other private placements	USD	45	18
<b>Commercial paper programs</b>		<b>488</b>	<b>1,379</b>
<b>Bank debt</b>		<b>389</b>	<b>611</b>
<b>Total gross debt</b>		<b>2,168</b>	<b>4,575</b>
Short-term loans, marketable securities and cash		(438)	(785)
<b>Total net indebtedness</b>		<b>1,730</b>	<b>3,790</b>

As indicated in Note (D) to the consolidated financial statements, total debt accounted pro rata of the equity interest held by Air Liquide in companies consolidated by the equity method as of December 31, 2004, and related to the normal course of the business is 17 million euros - including 8 million euros of non-recourse project financing debt. Furthermore, the non-recourse factoring of receivables represents 74 million euros. These elements do not constitute risk or financial liabilities for the Group.

Following the acquisition of Messer activities, Air Liquide retains a strong credit rating. In May, 2004, Standard and Poor's, the credit rating agency, gave a long-term rating of "A+/negative outlook" and a short-term rating of "A1". Moody's attributed a short-term rating of "P1".

## Net indebtedness by currency

Air Liquide's debt is mainly in EUR and USD (approximately 92%). In 2004, the portion of EUR debt increased, from 56% to 72%, due mainly to the financing of the acquisition Messer activities. The outstanding USD and JPY debt increased in absolute value, but to a lesser extent. The increase in USD debt is due to the financing of Messer activities in the United States and to debt not previously consolidated. The increase in JPY debt is due to the financing of an exceptional dividend from the JAG subsidiary.

*In millions of euros*

	2003		2004	
	Stock	%	Stock	%
EUR	980	56%	2,718	72%
USD	531	31%	758	20%
JPY	133	8%	223	6%
CAD	84	5%	95	2%
Other	2	0%	(4)	0%
<b>Total</b>	<b>1,730</b>	<b>100%</b>	<b>3,790</b>	<b>100%</b>

## Variation of net indebtedness

As of December 31, 2004, net indebtedness was 3,790 million euros (1,730 million euros in 2003), an increase of 2,060 million euros due mainly to exceptional items: the impact of the Messer activities (1,988 million euros), the end of the securitization program in the United States and in Canada partially offset by the increase of other programs (net amount of 91 million euros), and the change in the consolidation perimeter (63 million euros). The impact of changes in currency on net indebtedness, slightly positive at 57 million euros, is due to a nearly 8% drop in the value of the US dollar.

*In millions of euros*

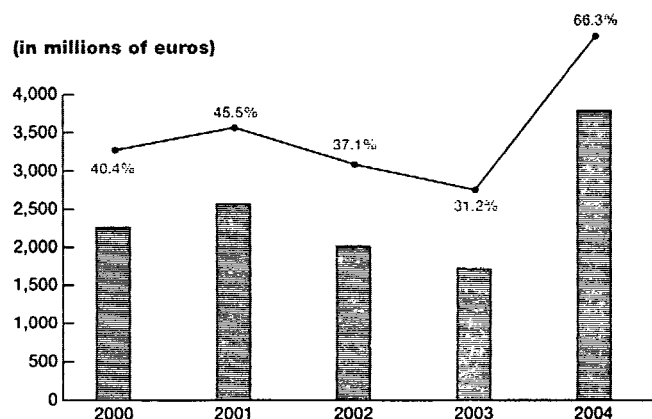
<b>Net indebtedness as of 12/31/2003</b>	<b>1,730</b>
Funds from operations after investments, change in working capital and others	(533)
Distribution of dividends	489
Foreign exchange impact	(57)
Purchase of treasury shares (net of capital increase)	31
Impact of Messer	1,988
Change in the consolidation perimeter and securitization program	166
<b>Net indebtedness as of 12/31/2004</b>	<b>3,790</b>

For details on the Statement of changes in financial position, see page 120.

## Debt ratio

The net indebtedness to shareholders' equity ratio was 66.3% in 2004 (excluding the acquisition of Messer activities, this ratio would have been 31.4%), compared with 31.2% in 2003. The equivalent debt ratio calculated using the U.S. method: net indebtedness/(net indebtedness + shareholders' equity) reached 39.9% in 2004, compared with 23.8% in 2003.

*(in millions of euros)*



■ Net indebtedness as of December 31  
 ◆ Net indebtedness to shareholders' equity ratio

The financial expenses coverage ratio (operating income before amortization of goodwill + share in the results of companies accounted for by the equity method)/net financial expenses reached 9.6 in 2004, compared with 12.1 in 2003. This change results from the increase in interest expenses due to the acquisition of Messer activities.

## Proportion of fixed-rate debt

As of December 31, 2004, fixed-rate debt represented 61% of total Group debt adjusted for outstanding short-term investments. Including all optional hedges, the portion of hedged debt (fixed rate + optional hedges) was 84%, as follows:

		12/31/2003	12/31/2004
EUR debt	Portion of fixed-rate debt	49%	55%
	Additional optional hedges	31%	33%
USD debt	Portion of fixed-rate debt	65%	88%
	Additional optional hedges	7%	4%
JPY debt	Portion of fixed-rate debt	85%	60%
	Additional optional hedges	0%	0%
Total debt	Portion of fixed-rate debt	59%	61%
	Additional optional hedges	18%	23%

In 2004, given the Group's hedging policy on interest rate risks, outstanding fixed-rate debt was kept at around 60%. The fixed-rate portion of the USD debt increased, in the context of rising USD interest rates. Conversely, the fixed-rate portion of JPY debt decreased, to benefit from lower rates on this currency.

## Long-term debt

As of December 31, 2004, medium and long-term debt accounted for 94% of the Group's gross debt. The maturity schedule for the Group's medium and long-term debt is shown in Note (I) to the consolidated financial statements.

### Gross debt maturities by financial instrument

In millions of euros

	Total	Bonds	Private placements	Bank Debt (1)
2005	274	23	18	233
2006	103	3	0	100
2007	759	204	135	420
2008	126	5	50	71
2009	1,415	4	267	1,144
2010	511	500	0	11
2011	380	300	73	7
2012	205	0	203	2
2013	301	300	0	1
2014	501	500	0	1
Later maturity	0	0	0	0
<b>Total gross debt</b>	<b>4,575</b>	<b>1,839</b>	<b>746</b>	<b>1,990</b>

(1) Including commercial paper outstanding backed with confirmed lines of credit. The maturing date for commercial paper outstanding coincides with that of confirmed lines of credit.

## Cost of debt

In millions of euros

	2003			2004		
	Average outstanding debt	Gross interest (1)	Cost of debt	Average outstanding debt	Gross interest (1)	Cost of debt
EUR	1,243	59	4.7%	2,697	102	3.8%
USD	672	37	5.5%	887	38	4.3%
JPY	249	3	1.2%	226	3	1.4%
Other currencies	257	14	5.4%	242	13	5.4%
Other charges (2)		3			4	
<b>Total</b>	<b>2,421</b>	<b>116</b>	<b>4.8%</b>	<b>4,052</b>	<b>161</b>	<b>4.0%</b>

(1) Interest on gross debt before financial income.

(2) Other charges excluded from cost of debt by currency.

Cost of debt is calculated by dividing interest charges for the fiscal year (excluding bank charges not directly related to debt) by the year's average total outstanding debt. The latter is calculated on the basis of a monthly average.

Cost of debt in 2004 was 4% (4.8% in 2003). This decrease is due mainly to the impact of the average rate of Messer's additional debt (about 3.3%, see page 84) on the average rate of the consolidated debt, as well as to the drop in euro short-term variable rates.

The Group's policy is to spread over time the maturity of long-term debt (bonds and private placements) in order to avoid concentration of annual refinancing needs. Given the regularity of funds from operations generated each year (1,695 million euros in 2004) and the variety of financial instruments used, refinancing of debt does not represent a liquidity risk for the Group.

The 2009 due date for bank debt is mainly attributable to maturing confirmed lines of credit designed to preserve short-term liquidity for financing purposes. The Group's policy is to renew confirmed long-term lines of credit at least one year before maturity.

## Debt liquidity

As of December 31, 2004, the Group had 2,255 million euros in committed lines of credit agreements (compared with 1,663 million euros in 2003). These back-up lines are confirmed by banks and do not contain default clauses linked to financial ratios or rating levels, nor "Material Adverse Change" clauses. The outstanding amount of French CP and USCP was 1,379 million euros as of December 31, 2004 (488 million euros in 2003). According to Group policy, the outstanding amounts of commercial paper programs must be backed-up with committed lines of credit. In 2004, this policy was followed throughout the year, and committed lines of credit have consistently been higher than commercial paper outstandings.



## 2005 Outlook

The year 2004 was marked by the acquisition of Messer activities which constitutes a major strategic step forward for the Group. The overall impact of this transaction on the Group's net indebtedness is about 2 billion euros, after divestments, acquisition costs and financial charges. At year-end 2004, with a net indebtedness of 3,790 million euros, Air Liquide's net indebtedness to shareholders' equity ratio was 66.3%, lower than the Group's objective (70%) when the acquisition was announced. Air Liquide is demonstrating again its capacity to generate strong cash flow, based on long-term contracts in particular, and to pay off its debt. Air Liquide will retain its policy of selecting and managing capital expenditures, and will pursue debt reduction steadily, while maintaining dividend policy to shareholders. In the medium term, Air Liquide plans to achieve a net indebtedness to shareholders' equity ratio in line with the Group's traditional levels, that is between 35% and 50%.

This acquisition was carried out according to the Group's financial policy. Air Liquide will continue to favor liquidity as well as prudent management of financial risks, in particular through long-term interest rate hedging to avoid fluctuations in financial expenses.

## Details of financial instruments

### Details of financial instruments for hedging foreign exchange risk

The following table shows the breakdown by currency, as of December 31, 2004, of the nominal value of financial instruments for hedging foreign exchange relating to royalties and dividends and to refinancing of subsidiaries:

#### Instruments relating to royalties and dividends

*In millions of euros*

Type of instrument	Maturity 2005	After 2005
<b>Forward sales contracts</b>		
USD	142	0
CAD	15	0
AUD (Australian dollar)	12	2
CHF (Swiss franc)	9	0
JPY	6	0
Other currencies	20	0

#### Instruments relating to inter-company financing

*In millions of euros*

	Maturity 2005	After 2005
<b>Foreign exchange swaps borrowing from banks</b>		
USD	307	0
CAD	96	0
JPY	22	0
GBP (British pound)	12	0
<b>Foreign exchange swaps lending to banks</b>		
USD	(7)	0
CHF	(23)	0
GBP	(13)	0
DKK (Danish krone)	(11)	0
SEK (Swedish krona)	(10)	0
<b>Currency swap (with exchange from variable rate to medium-term fixed rate)</b>		
JPY		36

The notional amounts in foreign currencies are converted to euros based on the year-end exchange rate.

They represent the notional value of the financial instruments.

The difference between the market value and historical cost of the instruments used to hedge the foreign exchange risks described above is positive by 22 million euros.

## Details of financial instruments for hedging interest rate risk

The financial instruments for hedging interest rates outstanding as of December 31, 2004, are shown by maturity. They are not speculative and come under the hedging policy described above.

*In millions of euros*

Type of instrument	Total	2005	2006	2007	2008	2009	≥ 2010
<b>Interest rate swaps: paying fixed, receiving floating rate</b>							
Objective: to exchange variable rates against fixed rates to guarantee future fixed rates							
EUR	1,530	550	150	200	200	300	130
USD	360	154		73	59		73
JPY	97			29		39	29
CAD	43		43				

*In millions of euros*

Type of instrument	Total	2005	2006	2007	2008	2009	≥ 2010
<b>Interest rate swaps: paying floating, receiving fixed</b>							
Objective: to exchange fixed rates against variable rates							
EUR	1,470			200	50		1,220
USD	73						73

*In millions of euros*

Type of instrument	Total	2005	2006	2007	2008	2009	≥ 2010
<b>Options: caps</b>							
Objective: to put a cap on interest rates							
EUR	875	100			275	200	300
USD	37				37		

*In millions of euros*

Type of instrument	Total	2005	2006	2007	2008	2009	≥ 2010
<b>Interest rate options: tunnel</b>							
Objective: to keep interest rates in a tunnel							
EUR	75		75				

As of December 31, 2004, the difference between the market value and historical cost of the swaps used to exchange the fixed rate EMTN and private placements into variable rates represented a positive market value of 71 million euros.

The market value of the derivative instruments used to secure the financial expenses on long-term debt at Group level was negative by 66 million euros. This is explained, in the context of falling interest rates in the main currencies, by the Group's policy of backing long-term fixed assets with fixed-rate long-term debt at the time of investment. This funding policy is aimed at protecting the Group from long-term increases in interest rates.

The net market value of all interest rate derivative instruments is therefore positive by 5 million euros as of December 31, 2004.

## Share buy-back

In compliance with resolutions approved at the General Shareholders' Meeting on May 12, 2004, Air Liquide has implemented a share buyback program designed to:

- cancel shares in order to optimize shareholders' equity and net earnings per share, in one or several stages, within the limit of 10% of the Company's share capital over a 24-month period;
- buy and sell shares based on market conditions;
- allocate share options to its own or subsidiary employees;
- sell shares in any form, whether through the exchange of shares or payment in the context of financial transactions or acquisitions.

As of December 31, 2003, Air Liquide held 1,942,112 of its own shares (representing 1.9% of share capital), of which 1,915,171 were held directly.

In 2004, Air Liquide bought back 339,743 shares (adjusted for the 2,500 shares issued in June, 2004) for a total of 44.4 million euros (at an average purchase price of 130.60 euros) and cancelled 1 million shares. This rate of share buyback is lower than in 2003 (1,185,641 shares) given the major acquisition carried out in 2004.

As of December 31, 2004, Air Liquide held 1,376,249 of its own shares representing 1.3% of share capital, of which 1,346,431 were held directly. 1 million of the shares thus held have been set aside in the event of acquisitions or other financial transactions involving exchanges of shares or payment in shares, while 346,431 have been set aside in the event of share cancellation.

# Risk factors

## Market risks

Market risks are addressed in the Financial Policy section of the Management Report (page 91).

## Specific business-related risks

As of today, Air Liquide's overall business activity does not rely on third-party patents, nor does it depend on supply, industrial, commercial or financial contracts, or new manufacturing processes.

The Group serves more than one million customers in a broad range of industries, over an extensive geographic area, thus precluding any concentration of customer credit risk for the Group.

In spite of high price volatility for electricity and natural gas driven by market deregulation, Air Liquide's policy remains the indexation of long-term customer contracts to hedge these risks. Recent fluctuations in electricity prices led the Group to replace its pricing indices, for the regulated period, with indices relevant to each national market. For several years, the Group has followed the same approach for natural gas. In parallel, Air Liquide has optimized its policy for the supply of electricity and gas. This policy enables the Group to offer the best possible terms to its customers, safely and with transparency, as it is based on reliable and efficient sources of supply.

## Legal risks

The Group has a worldwide presence. Its subsidiaries operating industrial and medical gases production units are obliged to comply with rules and regulations in force locally, particularly in the technical field.

Furthermore, in Healthcare, certain products may be subject to drug regulatory control.

At this time, the Group has no knowledge of any exceptional facts or litigation, including in the very recent past, that could significantly affect its property, financial situation, activities or results.

## Industrial and environmental risks

Industrial and environmental risks are detailed in the section on sustainable development in the Annual Report, particularly in the following two sections: "Preserving life and the environment" (page 42) and "Sustainable development" (page 149).

These sections indicate the number of sites under the European Seveso directive and the number of equivalent sites worldwide, distance covered by delivery trucks, electrical and thermal energy consumption, water consumption, emissions into water and the atmosphere, and progress made towards quality (ISO 9001) and environmental (ISO 14001) certifications.

These sections also include:

- The Group's safety policy, which is a key priority, with results for the last 15 years;
- The formalization within a single framework of the standards for industrial management (IMS) designed to enhance reliability, safety and risk management of the Group's industrial activities worldwide.

In addition, the Report from the Chairman of the Supervisory Board on the Company's internal control procedures presents the Group's organization and procedures for managing risks (page 139).

## Insurance management

The Group has adequate insurance coverage, underwritten by first-grade insurers, for civil liability, property damage and business interruption. Since January 1, 2003, it has had in place a captive insurance company that retains part of the property damage and business interruption risk.

## Property damage and business interruption

Group property and business interruption are covered by property and casualty insurance policies underwritten in each country in which the Group operates. Almost all of these policies are grouped under an international program.

These policies, which are generally of the "All Risks except" type, cover fire, lightning, water damage, explosions, vandalism, shock, equipment breakdown, theft and, based on the country and in limited amounts, natural disasters.

Business interruption is insured for most production sites under these same policies.

The coverage period for business interruption is 12 to 18 months.

Property damage deductibles are generally 15,000 euros per loss for small sites and 400,000 euros per loss for large production units, except in the United States, where the deductible is 1,500,000 dollars per loss. Business interruption is covered after a deductible period of 15 days for most operations, except in the United States, where coverage begins after 60 days.

Since January 1, 2003, the Group has retained a portion of property damage and business interruption risk through a captive insurance company in Luxembourg. This captive insurance company covers losses of up to 5 million euros per loss over and above the deductibles to a maximum of 10 million euros per year. Beyond that amount, risks are transferred to insurers. The captive is fully integrated into the international damage and business interruption program.

Insurers conduct regular visits at the main industrial sites for risk assessment purposes.

### **Liability**

In terms of liability, the Group maintains two different coverages, one for the North American zone and another for the rest of the world. The North American zone is covered by insurance underwritten in the United States. For the other zones, the Group has taken out an umbrella policy, underwritten in France, which covers both the Company and its subsidiaries outside of the United States and Canada, beyond any local coverage.

These two policies cover liability of the Group companies for any damage they might cause to a third party in the course of doing business (operational risk) or arising from their products (product risk). Furthermore, with certain limitations, these policies cover the pollution risk and the costs of recalling products.

The amount of coverage is above 500 million euros. Both of these policies include several overlapping lines of insurance. Each line has been underwritten for a given amount with several insurers sharing the risk. Beyond the first line, the upper lines pick up the excess risk from the lower lines.

The policy underwritten by the Company in France serves as an umbrella for subsidiaries outside of North America. Under this umbrella, each foreign subsidiary has its own policy covering damages to third parties incurred through its activities or products. The amount insured for each subsidiary in its policy depends on its sales. Beyond the amount insured locally, subsidiaries are insured under the French umbrella policy.

The deductible is 2,000,000 dollars per loss for insurance underwritten in the United States for North America. The deductible of the umbrella policy underwritten in France is 15,250 euros per loss for the other countries, but with higher amounts for non-consecutive immaterial damage, pollution, recall costs and "Electronics" customers.

The main exclusions are deliberate acts, war, nuclear incidents and repair of defective products.

# Pensions and other benefits

Air Liquide provides its employees with various pension plans, termination indemnities, jubilees, and other post-employment benefits for both active employees and retirees. These plans vary according to laws and regulations applicable in each country as well as specific rules in each subsidiary.

These benefits are covered in two ways:

- Defined contribution plans;
- Defined benefit plans.

Defined contribution plans are those whereby employers undertake to pay regular contributions. The employer's obligation is limited to payment of the established contributions. The employer does not provide any guarantee as to the future level of benefits paid to the current or retired employee (a type known as a "means-based obligation").

The annual liability corresponds to the contribution due in one fiscal year that releases the employer from any further liability.

Defined benefit plans are those whereby the employer guarantees the future level of fixed benefits under the agreement, most often in proportion to level of salary and length of service (a type known as a "result-based obligation").

Defined benefit plans may be either:

- financed by payments to specialized asset management funds, or
- managed internally.

Defined benefit plans require:

- Evaluation of the employer's obligations towards its employees;
- Evaluation of the assets' market value of the external funding;
- Evaluation of the expenses to be accrued annually, based on liability changes and return on the funds invested.

Defined contribution and defined benefit plans are both implemented in the Air Liquide Group.

These plans have been set up in countries where the Group has operations to ensure that Air Liquide employees receive benefits in line with customary practices of large companies operating in those countries.

Defined contribution plans basically involve the pension plans of L'Air Liquide S.A. and its French subsidiaries, the 401K plans in the United States and some Canadian pension plans.

The defined benefit plans mainly involve:

- The American, Japanese, Swiss and German plans, as well as some Canadian plans;
- The French and Italian severance payments;
- The American and Canadian retiree medical plans.

The table below illustrates the status, as of December 31, 2004, of the various defined benefit plans operating within the Group (for its major subsidiaries and obligations).

## Commitments for defined benefit plans

*In millions of euros*

As of 12/31/2004	Projected benefits	External funding market value	Balance sheet provisions	Over-funding (under-funding)
Europe	699	277	362	(60)
Americas	452	319	56	(77)
Asia-Pacific	92	41	53	2
<b>Total</b>	<b>1,243</b>	<b>637</b>	<b>471</b>	<b>(135)</b>

Commitments valued by actuaries.

Benefits are regularly valued by actuaries. These valuations are performed for each plan according to International Accounting Standards. The actuarial method used is the projected unit credit method taking into account final pay.

Actuarial gains and losses above 10% of the greater of liabilities or assets are amortized over the Employees Average Remaining Service Lifetime (EARSL).

The actuarial assumptions (turnover, mortality, retirement age, salary increase) vary according to demographic and economic conditions in each country.

The discount rates used to determine the liability are based on government bonds or high-quality corporate bonds with the same duration as the liabilities at the valuation date.

The expected return on long-term assets is determined by taking into account, in each country, the asset allocation in the portfolio.

According to international accounting regulations, some obligations may appear to be under-funded or not sufficiently provisioned, even if they are on a par with or in excess of the figures established under the local regulations.

Decisions with regard to coverage of any under-funded plans are taken for each individual plan in accordance with local requirements applicable in the countries where subsidiaries are located. Any additional financing required is generally spread over several fiscal years.

The Group has established a policy to monitor and control pension and other employee benefits with the help of an independent actuary in order to ensure the relevance of the actuarial and financial assumptions and the validity of the calculations.

### **Charges accrued during the 2003 and 2004 fiscal years for pensions and other benefits**

*In millions of euros*

	2003	2004
Defined benefit plans	39.2	51.2
Defined contribution plans	59.1	57.1

### **L'Air Liquide S.A. and subsidiaries included under the pension agreement**

Several pension plans co-exist within the Group:

The parent company and a number of subsidiaries in France grant:  
 ■ Additional benefits to retirees (5,034 retirees as of December 31, 2004) and to employees over 45, or with more than 20 years of service as of January 1, 1996 (1,047 employees as of December 31, 2004). These benefits provide a supplemental retirement income based on final pay, which is paid in addition to the other normal retirement benefits. This plan was closed on February 1, 1996.

The annual amount paid with respect to this plan cannot exceed 12% of payroll or 12% of pre-tax profit for the companies involved.

As a consequence of the plan closing, this 12% value will be reduced starting in year 2010, based on the annual decrease in the number of retirees.

Due to these limits, this plan is viewed as a defined contribution plan. The expenses are accounted for in the financial statements as they are paid since these liabilities cannot be viewed as ongoing and stable for the companies.

The contributions amounted to 36.1 million euros in 2004 (34.6 and 34.0 million euros in 2003 and 2002 respectively).

Without the limits, the actuarial value of the annual contributions paid to those eligible until the plan is stopped, would be, as of December 31, 2004, equal to 402.7 million euros (300.8 million euros for retirees and 101.9 million euros for active employees).

■ An externally funded defined contribution plan for other employees not in the plan mentioned above (4,347 employees as of December 31, 2004) with at least one year of service. Contributions to this plan are jointly paid by the employer and employee. For fiscal year 2004, employer contributions amounted to 6.2 million euros (2003 and 2002: 5.5 and 5.0 million euros respectively).

The other main pension plans are defined benefit plans in North America (United States and Canada, 36% of liabilities), in Switzerland (10% of liabilities), in Germany (22% of liabilities), in Spain (8% of liabilities) and in Japan (7% of liabilities).

# Statutory auditors' offices and remuneration

## Statutory auditors' offices

### Ernst & Young

#### Principal statutory auditor

The Ernst & Young Audit firm is represented by Jean-Claude Lomberget  
Tour Ernst & Young – 92037 Paris La Défense Cedex

#### Substitute statutory auditor

Valérie Quint with Ernst & Young Audit  
Tour Ernst & Young – 92037 Paris La Défense Cedex

### Mazars & Guérard

#### Principal statutory auditor

The Mazars & Guérard firm is represented by Frédéric Allilaire  
39, rue de Wattignies – 75012 Paris

#### Substitute statutory auditor

Patrick de Cambourg with Mazars & Guérard  
39, rue de Wattignies – 75012 Paris

All statutory auditors, principals and substitutes, were appointed on May 12, 2004. Their term of office expires at the end of the General Shareholders' Meeting to vote on the financial statements for 2009. Financial statements for 2002 and 2003 were certified by the Ernst & Young Audit and RSM Salustro-Reydel firms.

## Statutory auditors' remuneration

Remuneration recorded in 2004 by the Air Liquide Group relating to statutory auditors' services are as follows:

*In thousands of euros*

	ERNST & YOUNG	MAZARS & GUÉRARD	Other	Total 2004	Total 2003
<b>Audit services</b>					
audit	5,054	771	744	6,569	5,741
audit services	2,895	2	67	2,964	950
<b>Total of audit services</b>	<b>7,949</b>	<b>773</b>	<b>811</b>	<b>9,533</b>	<b>6,691</b>
<b>Other services</b>					
tax and legal <sup>(1)</sup>	1,423		501	1,924	1,193
information systems	44		46	90	59
other services	200		271	471	160
<b>Total of other services</b>	<b>1,667</b>	<b>0</b>	<b>818</b>	<b>2,485</b>	<b>1,412</b>
<b>Total of auditors' remuneration</b>	<b>9,616</b>	<b>773</b>	<b>1,629</b>	<b>12,018</b>	<b>8,103</b>

<sup>(1)</sup> Tax and legal services performed by Ernst & Young mainly concern foreign subsidiaries.



# Stock options and stock purchase plans

Following the decisions of the General Shareholders' Meeting and on recommendation of the Selection and Remuneration Committee, the Board of Directors, the Supervisory Board and the Management Board have adopted, at Group level, stock options schemes for senior executives (including executive directors) and key employees.

These options schemes are intended to motivate key executives at Group level, retain the most performing individuals and focus them on the medium and long-term interests of shareholders.

In addition, on the occasion of Air Liquide's 100-Year celebration in 2002, stock options were granted on an exceptional basis to all

Group employees worldwide with a maximum of 30 stock options each.

Stock options are granted for a minimum unitary amount equal to 100% of the average market price of the last 20 days prior to the day they were granted. The maximum exercise term is ten years for stock options granted before May 4, 2000, seven years for those granted between May 4, 2000, and April 8, 2004, and eight years for those granted since that date. A very small number of stock options have been granted on condition that certain objectives be achieved during a defined period.

## Options granted over the last ten years

(maximum exercisable term after the date of grant)

	1996	1997	1998	1999	2000	2001	2002	2002 (2)	2004	2004
Date of authorization by the Extraordinary General Shareholders' Meeting	05/22/96	05/22/96	05/22/96	05/12/99	05/04/00	05/04/00	04/30/02	04/30/02	04/30/02	05/12/04
Date of allocation by the Board of Directors or the Management Board	05/22/96	09/24/97	01/22/98	05/12/99	09/07/00	08/28/01	06/14/02	10/10/02	04/08/04	11/30/04
Total stock options granted	105,000	73,000	20,000	264,300	702,900	5,900	955,400	769,130	500,000	35,385
including to officers and directors	30,000	0	20,000	44,000	70,000	0	75,000	60	57,000	15,000
including to top ten executives whose number of options granted is the highest	43,000	55,000	0	46,000	83,500	5,900	112,000	300	77,000	12,325
Number of recipients	28	16	1	122	321	2	481	31,012	448	38
Exercise period start date	05/22/96	09/24/02	01/22/03	05/12/04	09/07/04	08/28/05	06/14/06	10/10/06	04/08/08	11/30/08
Expiration date	05/21/06	09/23/07	01/21/08	05/11/09	09/06/07	08/27/08	06/13/09	10/09/09	04/07/11	11/29/12
Purchase price (in euros)	138.73	140.25	140.25	148.00	142.00	155.00	168.00	128.00	139.00	131.00
Purchase price as of 12/31/04(1)	82.29	91.41	-	108.69	114.75	125.25	135.75	116.36	126.36	131.00
Total stock options granted adjusted as of 12/31/04(1)	172,076	92,202	24,799	353,990	854,851	7,032	1,179,924	842,116	549,921	35,385
Total stock options exercised as of 12/31/04(1)	20,594	1,000	0	15,579	21,989	0	0	1,983 (4)	0	0
Total stock options cancelled as of 12/31/04(1) (3)	0	83,090	24,799	22,777	51,740	2,700	36,393	42,138	11,333	650
Total stock options remaining as of 12/31/04(1)	151,482	8,112	0	315,634	781,122	4,332	1,143,531	797,995	538,588	34,735

The total number of stock options remaining as of December 31, 2004, was 3,775,531.

(1) Adjusted to take into account share capital increases through bonus share allocations (2004, 2002, 2000, 1998, 1996).

(2) Exceptional plan approved in 2002, for the Company's 100-Year celebration and involving all Group employees who met certain conditions, including seniority. Plan limited to a maximum of 30 stock options per recipient.

(3) Loss of exercise rights and, for 1997 and 1998, non-achievement of three-year net earnings per share performance targets.

(4) Early exercise of rights provided for in the stock options plan.

During 2004, 585,306 adjusted stock options were granted at an average adjusted price of 126.64 euros to employees of the Company and of its subsidiaries. Also in 2004, 133,299 stock options were exercised at an average purchase price of 82.61 euros.

The total number of adjusted stock options, granted by the Board of Directors, the Supervisory Board, and the Management Board under the schemes authorized by General Shareholders' Meetings, but not exercised as of December 31, 2004, amounts to 3,775,531 options, i.e. 3.46% of the capital shares (average purchase price: 121.41 euros), of which 584,122 (at an average price of 123,57 euros) have been granted to the general management.

These stock options are to be exercised within a ten-year maximum term after the day they were granted for those granted by May 4, 2000, within a seven-year maximum term for those granted between May 4, 2000 and April 8, 2004, and within an eight-year term for those granted since that date.

Stock options were granted between September 24, 1997, and May 12, 1999, can only be exercised after a five-year minimum term. The stock options granted since May 12, 1999, can only be exercised after a four-year minimum term from the date they were granted.

As of December 31, 2004, out of the total number of options authorized by the General Shareholders' Meeting, 3,240,039 options have not been granted by the Supervisory Board and the Management Board.

**Options granted to the ten officers of the Company and its subsidiaries (excluding officers and directors) with the highest number of options granted**

In 2004, 77,000 options were granted to ten officers of the Company and its subsidiaries (excluding officers and directors) who received the highest number of options. This number was adjusted upward to 84,710 to factor in the capital increase resulting from the bonus share allocation of June 14, 2004, (one bonus share for ten held).

**Options exercised in 2004 by the ten officers of the Company and its subsidiaries (excluding officers and directors) with the highest number of options exercised**

Granted in	Number of options exercised	Average price (in euros)
1994	10,203	68.44
1996	817	90.52
1997	1,000	100.55
1999	12,500	110.84
2000	8,155	114.75
<b>Total</b>	<b>32,675</b>	<b>97.75</b>

# Remuneration of officers and directors of L'Air Liquide S.A.

Gross remuneration and benefits paid to members of the Management Board of L'Air Liquide S.A. for all companies in the Group, including fringe benefits, amount to:

*In thousands of euros*

	Amount for 2003		Amount for 2004	
	due	paid	due	paid
<b>Benoît Potier</b>				
- Fixed portion	821	783	863	904
- Variable portion	826	564	1,238	826
<b>Total</b>	<b>1,647</b>	<b>1,347</b>	<b>2,101</b>	<b>1,730</b>
<b>Jean-Claude Buono</b>				
- Fixed portion	478	478	468	468
- Variable portion	383	259	522	383
<b>Total</b>	<b>861</b>	<b>737</b>	<b>990</b>	<b>851</b>
<b>Klaus Schmieder</b>				
- Fixed portion			300	300
- Variable portion			330	
<b>Total</b>			<b>630</b>	<b>300</b>

In addition, the Company paid 109 thousand euros for additional pension plans to the benefit of Benoît Potier.

The whole variable portion of remuneration due for any given fiscal year is paid the following year.

In 2003, the variable portion of Management Board members' overall remuneration was based primarily on the following two factors: growth in net earnings per share and return on capital employed after tax (ROCE). Those factors were supplemented by qualitative individual objectives such as to prepare for the Group's future or to react to changes in business environment.

In 2004, remuneration policy for members of the Management Board approved by the Supervisory Board at the beginning of the year, is divided into two parts:

- A fixed portion tied to the level of responsibility and experience in the function;
- A variable portion based primarily on two factors: growth in net earnings per share, excluding foreign exchange, and return on capital employed after tax (ROCE), supplemented by a portion based on qualitative individual objectives, such as to conclude successfully all of the operations tied to the acquisition of Messer assets, to prepare for the Company's future development, to respond to changes in the business environment, to implement the productivity program, and to improve the risk management system.

The following table details members' attendance fees and other remuneration paid in 2004 to the members of the Supervisory Board.

*In thousands of euros*

Alain Joly (Chairman of the Supervisory Board)	(1) 229
Édouard de Royere	48
Prof. Rolf Krebs	31
Michel Bon	17
Thierry Desmarest	46
Pierre-Gilles de Gennes	41
Sir Christopher Hogg	52
Gérard de La Martinière	43
Cornelis van Lede	53
Béatrice Majnoni d'Intignano	40
Lindsay Owen-Jones	43
Sir Dennis Weatherstone	62

(1) For Alain Joly, this corresponds to his remuneration as Chairman of the Supervisory Board.

In addition, Édouard de Royere and Alain Joly received retirement benefits of 1,604 thousand euros and 1,039 thousand euros.

### Supervisory Board and officers' remuneration

Emoluments granted to the members of the Supervisory Board and officers of L'Air Liquide S.A., as compensation for their responsibilities in the Group, are as follows:

*In millions of euros*

	2002	2003	2004
Emoluments to the members of the Supervisory Board	0.6	0.7	0.7
Emoluments to the officers	5.6	6.6	8.4
<b>Total</b>	<b>6.2</b>	<b>7.3</b>	<b>9.1</b>

Officers include the members of both the Management Board and the Executive Committee.

The remuneration policy of senior management takes into account current market practices. It includes a substantial variable portion based on targets of Group earnings growth and individual performance.

### Stock options granted to officers and directors

Total adjusted stock options granted to officers and directors, and not exercised as of December 31, 2004, amount to:

	Total stock options granted	Average price (in euros)	Granted	
			In 2004	Over the last five fiscal years
Benoît Potier	158,489	123.41	44,002	130,666
Jean-Claude Buono	87,890	120.21	18,701	68,237
Klaus Schmieder	15,000	131.00	15,000	15,000

The total number of stock options granted to Alain Joly, Chairman of the Supervisory Board, and not exercised as of December 31, 2004, amounts to 129,639 options at an average price of 104.72 euros. These stock options were granted to him prior to 2001, as Chairman and Chief Executive Officer or as Chief Executive Officer of the Company.

### Stock options exercised by officers and directors

The total number of options exercised by officers and directors in 2004, amounts to:

	Number of options exercised	Granted in	Average price (in euros)
Alain Joly	33,773	1994	69.52
Jean-Claude Buono	5,069	1994	69.52

### Transactions made on Company shares by officers and directors

In 2004, until November 24, 2004, when the General Regulation of the AMF (French Financial Market Authority) came into force, three members bought 1,560 shares at an average price of 143.59 euros and two members sold 21,459 shares at an average price of 141.56 euros.

From November 24, 2004, senior management's transactions on Company shares amount to:

	Nature of transaction	Average price (in euros)
Jean-Claude Buono	Sale of 700 Air Liquide shares	133.04

# Estimated impact of IFRS standards on the net opening equity as of January 1, 2004

These data are evaluative and have not been audited by the Group's statutory auditors.

From January 1, 2004, pursuant to decisions of the European Parliament and the Council of the European Union, Air Liquide will prepare its consolidated financial statements in conformity with International Financial Reporting Standards (IFRS).

The half-yearly financial statements of June 30, 2005, will be the first to be prepared according to this framework.

To allow meaningful comparisons, 2004 financial data will be restated and published using the new standards.

In 2003, the Group set up a project team with specialists from the Finance Department and the subsidiaries, working in close liaison with operations managers and the statutory auditors.

The team had the following missions:

- Identifying the main divergences between the accounting principles and methods currently applied in the Group and the IFRS standards;

- Defining the new format for presenting financial statements;

- Assessing what changes will be needed in information systems;

- Evaluating the impact of changes in accounting standards on the net opening balance sheet as of January 1, 2004.

The statutory auditors have approved the accounting principles selected by Air Liquide.

During a series of special meetings, the Audit and Accounts Committee has been regularly informed of progress, the accounting decisions envisaged, and the impact of the new standards on the Group's financial statements.

The Supervisory Board has been regularly informed by the Audit and Accounts Committee and by the Management Board.

## Impact of IFRS standards on the net opening equity at January 1, 2004

As of January 1, 2004, net opening equity will be restated by applying the IFRS standard, "First-time Adoption of IFRS." The following options provided by that standard have been selected:

- Business combinations effected prior to January 1, 2004, will not be restated;

- Deferred actuarial gains and losses in defined benefit pension plans will be imputed to the net opening equity. Deferred actuarial losses are estimated at around 250 million euros. When deferred taxes are considered, the net opening equity would be reduced by 150 million euros.

The other standards significantly impacting the net opening equity are IAS 16, "Property, Plant and Equipment," and IAS 19, "Employee Benefits."

## IAS 16 - Property, Plant and Equipment

To better reflect the value of tangible assets in the balance sheet, Air Liquide has decided to change the depreciation period of certain assets with a retroactive application to the date of acquisition. The lifetime of gas production units connected to a pipeline network and liquid gas production units has been set at 20 years instead of 15 years as previously; that of pipelines has been set at 30 instead of 25 years; that of liquid gas bulk vessels at 20 years instead of 10.

These changes will generate an increase in the value of assets between 350 and 450 million euros.

After determination of deferred taxes, the net opening equity as of January 1, 2004, would be increased by between 220 and 280 million euros. The definitive amount of this adjustment will be determined during the first semester of 2005.

In addition, IFRS standards make the component approach mandatory for components intended, from the acquisition date of the assets, to be replaced at regular intervals. Accounting for provisions for major repairs is prohibited. These measures have led Air Liquide to change the accounting treatment of provisions for major overhauls of cogeneration units.

A "maintenance costs" component is identified separately in the purchase cost of each fixed asset. It corresponds to the estimated cost of a major maintenance overhaul and is amortized between two such overhauls.

## IAS 19 - Employee Benefits

Air Liquide and some of its French subsidiaries grant retirees and certain active employees additional benefits beyond the normal pension plans. These benefits and plans are all based on the employee's final salary. The supplementary plans are now closed. The annual amount paid with respect to these plans cannot exceed a percentage of payroll or, in certain cases, of the pre-tax profit for the relevant companies.

Due to these limits, this plan was viewed as a defined contribution plan. The expenses were accounted for in the financial statements as they were paid since these liabilities could not be viewed as ongoing and stable for the companies.

IAS 19 "Employee Benefits" characterizes defined contribution plans very precisely and restrictively and indicates that any plan not complying fully with the conditions imposed is a defined benefit plan by default.

As a result, the restricted definition given to defined benefit plans has forced Air Liquide to state the retirement supplement as a defined benefit plan, despite the existence of these limits that restrict the Company's liabilities.

This requalification will result in a provision against future liabilities.

The existence of limits on these liabilities creates uncertainty in the evaluation of amounts that will actually be paid to retirees.

Considering the difficulty in quantifying the impact of the limits, it was decided to account for a provision corresponding to the actuarial value of the amounts to be paid out to pensioners until the plan disappears, apart from any impact from these limits.

Under the actuarial hypotheses chosen, that provision runs between 600 and 660 million euros.

After taking deferred taxes into consideration, the net opening equity as of January 1, 2004, is consequently reduced by between 390 and 430 million euros.

The final amount of the adjustment will be determined during the first semester of 2005.

Other IFRS standards will have no significant effect on the Group's net opening equity as of January 1, 2004:

### **IAS 36 - Impairment of Assets**

In IFRS, the loss of an asset's value must be recognized when the book value exceeds the recoverable value of the asset, this corresponding to the higher of the fair value less selling costs and the useful value of the asset.

Unlike current French accounting practices, IAS 36 requires the discounting of future cash flows to determine the useful value. This discounting obligation has the effect of establishing the useful value of five of the Group's industrial sites (among several hundred) at an amount lower than their net book value.

Consequently, a provision for depreciation of tangible assets amounting to some 40 million euros will be made.

After determination of deferred taxes, the net opening equity would be reduced by about 30 million euros.

The goodwill stated in the January 1, 2004, balance sheet has been tested for impairment applying IFRS standards. The useful value of the goodwill exceeds its net book value and therefore there is no loss of value.

### **IAS 37 - Provisions, Contingent Liabilities and Contingent Assets**

Costs of dismantling, removal or reconditioning of a site on which an asset is located must be integrated into the acquisition costs of tangible fixed assets and depreciated in counterpart to the liability incurred, stated as a provision.

This measure applies to Air Liquide for bulk vessels, on-site and production units located on land owned by a third party (usually the customer).

The impact on the net opening equity as of January 1, 2004, after determination of the associated deferred taxes, is a reduction of about 20 million euros.

### **IAS 38 - Intangible Assets**

According to French accounting principles, set-up costs and certain deferred charges incurred in major operations related to business development, the amount of which cannot be set against specific goods and services, can appear as intangible fixed assets on the assets side.

These costs fall under neither the definition nor the conditions for reporting intangible fixed assets according to IFRS standards.

As a result, certain set-up costs and deferred charges, in the amount of 50 million euros, have been written off. After the related deferred taxes, the net opening equity as of January 1, 2004, would be reduced by about 30 million euros.

Development costs must be capitalized under IFRS when certain conditions have been satisfied.

Air Liquide expenses costs of research and development for the year in which they are incurred. It has been found that the conditions imposed by IFRS for capitalization of development costs were not met by Air Liquide. The accounting for development costs is unchanged under IFRS. In fact, the work performed primarily concerns development of new production or gas utilization applications or the development of new services. In most instances, this work does not lead to the completion of an intangible asset specifically intended to be used or sold.

### **IFRS 2 - Share-based Payments**

The fair value of share options allocated to managers and employees starting in November, 2002, must be expensed in charges throughout the period of acquisition of the rights, with a corresponding increase in shareholders' equity as counterpart.

The option plans at issue are those of April and November, 2004. Application of this standard will therefore have no impact on the net opening equity as of January 1, 2004.

## IAS 32/39 - Financial Instruments

IAS standards IAS 32 and 39 relating to financial instruments will apply from January 1, 2005, only.

## Impact of IFRS standards on the presentation of consolidated financial statements

### Statement of earnings

Presentation of the consolidated statement of earnings will not change significantly.

### Balance sheet

The main changes in the balance sheet are:

- Distinction between current and non-current;
- Presentation before offset of deferred tax asset and liability balances.

### Statement of cash flow

The Statement of changes in financial position has been replaced by a Statement of cash flow identifying operating flows, investments, and financing.

This Statement explains the variation in net cash flow.

In addition, Air Liquide will provide an analysis of changes in net indebtedness.

## Impact on the net consolidated earnings for 2004

Application of IFRS should not significantly impact the published net earnings for 2004.

On the one hand, the IFRS 3 standard, "Business Combinations," replaces the obligation to amortize goodwill by annual goodwill impairment tests, which will increase the IFRS 2004 earnings as compared with the result published using current standards.

Also, IFRS 3 requires that restructuring costs of an acquired company be stated in the costs for that year if such restructuring is undertaken following the acquisition. Under current accounting practices, these costs are stated as goodwill, with no impact on earnings for the year.

Application of this IFRS standard means that restructuring costs incurred following the acquisition of Messer's activities, and now stated as goodwill, will be recognized as expenses in the restated 2004 earnings.

The amounts generated by these two changes mandated by IFRS 3 are essentially the same and offset each other in the published net earnings.

The other IFRS standards should not materially affect the published net earnings. For years subsequent to 2004, application of the IFRS standards will have a significantly positive effect on earnings, resulting primarily from the abandoning of the amortization of goodwill.

## Summary of the impact of IFRS on the net opening equity as of January 1, 2004

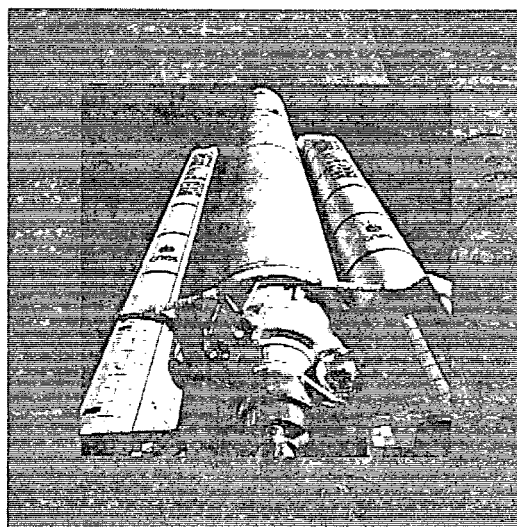
Estimated, non-audited data

Shareholders' equity and minority interests as of January 1, 2004, in compliance with French accounting regulations: 5,539 million euros

*In millions of euros*

Estimated impact, after tax, of IFRS on the net opening equity as of January 1, 2004	
IAS 16	
Rates of amortization of certain tangible assets	between 280 and 220
IAS 19	
Cancellation of deferred actuarial losses	(150)
Liabilities under pension plans of L'Air Liquide S.A. and its French subsidiaries	between (390) and (430)
Other standards (IAS 36, IAS 37, IAS 38)	(90)
Total estimated impact (non-audited amounts)	between (350) and (450)
Estimated shareholders' equity and minority interests as of January 1, 2004, applying IFRS standards	between 5,189 and 5,089

# Consolidated financial statements



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# Principles and methods of consolidation

The consolidated financial statements of the Air Liquide Group have been prepared in accordance with applicable French accounting principles, in particular the CRC 99-02 regulation.

## I - Principles of consolidation

### 1 - Companies included and consolidation methods used

The consolidation methods used are:

- full consolidation method;
- proportional method;
- equity method.

#### a - Full consolidation method

Where companies are fully consolidated, all assets and liabilities are included in the consolidated balance sheet after adjustments for minority interests. Revenues and expenses are similarly included in the Statement of consolidated earnings.

All significant subsidiaries in which the Air Liquide Group has an interest greater than 50% and, when certain conditions specified by law have been met, companies in which its interest is comprised between 40% and 50% are fully consolidated.

#### b - Proportional method

Under such consolidation method, assets and liabilities as well as revenues and expenses are recognized in the consolidated statements in proportion to the controlling interest held.

The proportional consolidation applies to partnerships in which revenues and expenses are shared between the partners equally to their controlling shares.

#### c - Equity method

Significant companies in which Air Liquide Group's interest is above 20% and those where its interest is greater than 50% but which are not sufficiently important to justify their being fully consolidated are accounted for by the equity method. Thus, only the share of net equity and earnings which corresponds to Air Liquide Group's percentage of interest are included.

#### d - Other investments

Investments in other companies not fully or proportionally consolidated or accounted for by the equity method are recorded in the consolidated balance sheet under the heading «Other investments» and are reflected in consolidated earnings only to the extent of dividends received.

## 2 - Adjustments arising on consolidation

### a - Intercompany balances and transactions

All intercompany balances between fully consolidated companies as well as intercompany gains or losses on Group transactions are eliminated.

### b - Regulatory provisions

Movements in those provisions which have been established in conformity with fiscal regulations or which are similar to reserves are eliminated in the determination of consolidated net earnings.

These provisions mainly concern depreciation for tax purposes, provisions for price increases and for investments.

### c - Deferred taxes

Adjustments made for consolidation purposes which may result in timing differences between income reported for income tax purposes and that reported in the consolidated financial statements give rise to deferred taxes. They are computed using current tax rates.

Deferred income taxes are primarily the result of:

- accelerated depreciation for tax purposes;
- provisions which are not immediately tax deductible.

### d - Translation of financial statements of foreign subsidiaries

The financial statements of foreign subsidiaries are translated into euros as follows:

- balance sheet items, at the official year-end exchange rates;
- statement of earnings and Statement of changes in financial position items, at average exchange rates for the year;
- resulting translation adjustments are recorded as a separate component of shareholders' equity and minority interests;
- financial statements of subsidiaries located in highly inflationist countries are translated at historical rates.

## II - Valuation methods

The consolidated financial statements are prepared on the basis of historical costs without re-evaluation.

### 1 - Fixed Assets

#### a - Intangible Assets

The intangible assets are carried out at cost. Depreciation is computed on the straight-line method regarding the estimated useful life, which is generally between three and five years, excepted intangible assets corresponding to customer contracts linked to the Messer acquisition, which are amortized over an average 25-year period.

#### b - Property, plant and equipment

Land, buildings and equipment are carried out at cost. Financial expenses were expensed as incurred until December 31, 1994.

Effective January 1, 1995, financial expenses are capitalized during the period of construction where it relates to the financing of major projects over a 12-month period of development. This change was made considering the Group's substantial development of investments in these major projects.

Assets under capital leases are capitalized and depreciated according to Group rules.

Depreciation is computed on the straight-line method, using the following estimated useful lives:

- buildings: 20 years
- cylinders: 20 years
- tanks: 10 to 15 years
- pipelines: 25 to 35 years
- other equipment: 5 to 15 years

#### c - Goodwill

Goodwill or badwill represent the difference between the purchase price and the fair value of the net assets acquired at the date of purchase. In the consolidated balance sheet, this difference is reflected on the assets for goodwill and on provisions for badwill, unless allocated to the related fixed assets.

Goodwill represent either the intangible assets or the control premium paid for the acquisition of assets.

Considering the nature of the acquisitions and the activities of the Group, goodwill are being amortized on a straight-line basis generally over 40 years for gas activities and over 10 to 20 years for other activities. Furthermore, where circumstances indicate that adverse changes have occurred in the estimates used in the initial computation of goodwill, the amount thereof is reduced accordingly.

Under exceptional circumstances (investments financed by proceeds from stock offering, etc.), goodwill may be eliminated against retained earnings.

#### d - Depreciation

When events or changes of background and market conditions involve a loss in value, a detailed review of the fixed assets is performed to reduce their net book value either to the market value or to the useful value. Useful value is calculated based on future operational cash flows representing the best estimation of the economic assumptions for the remaining useful life of the assets.

### 2 - Other investments

Other investments are reflected in the consolidated balance sheet at the lower of cost or market method on a going concern basis.

### 3 - Inventories

Inventories are valued at the lower of cost or market. The cost of certain categories of raw materials and finished goods, principally welding supplies and equipments, is determined using the LIFO method. The cost of other inventories is determined using the FIFO method, or by the average cost method.

### 4 - Engineering and construction

Revenues from engineering and construction activities are recorded when the contract is completed. Provisions are established for losses anticipated on uncompleted contracts.

### 5 - Innovation costs (research and development)

Based on the definition published by the OECD, innovation costs include all costs relating to scientific and technical activities, patent work, training and knowledge sharing necessary for the development, manufacturing, start-up and marketing of new or improved products and processes. Innovation costs are charged to income when they are incurred.

### 6 - Pensions and employee benefits

In accordance with laws and practices of each country, the Group contributes to pensions, pre-pensions and termination indemnity plans. The valuation methods which are applied are described in note (N) to the consolidated financial statements.

# Impact of the acquisition of Messer activities on consolidated financial statements

Air Liquide signed on May 7, 2004, an agreement for the acquisition of Messer's activities in Germany, the United Kingdom and the United States. Since then, these activities have been integrated into the consolidated financial statements.

Purchase consideration for shares is 2,684 million euros.

This acquisition has been approved by European and American competition authorities under the condition of divestments which have been completed under the following conditions:

- Sale of liquid gas activities in the United States to Matheson Tri-Gas, Inc. (a subsidiary of Nippon Sanso), effective as of November 2, 2004;
- Sale of Industries, bulk and cylinders activities in Germany to Praxair, effective as of December 3, 2004;
- Signing, on November 24, 2004, of an agreement to sell the 51% interest held in Messer Nippon Sanso to a newly-established subsidiary by Nippon Sanso Corporation.

By purchasing this interest, Taiyo Nippon Sanso exercised its right to buy Air Liquide's shares in the joint-venture. This sale was effective as of January 14, 2005.

As of December 31, 2004, divestments net of taxes amounted to 699 million euros.

As of May 7, 2004, goodwill, after allocation of acquisition and restructuring costs and after step-up of purchased assets, amounted to 1,517 million euros.

It is being amortized over a fourty year period.

The main impacts of the Messer acquisition on 2004 financial statements are as follows:

## Statement of earnings as of December 31, 2004:

*In millions of euros*

Net sales	470.7
Operating income before depreciation/amortization	111.9
Depreciation and amortization	(85.8)
Operating income	26.1
Net financial income (expense)	(55.6)
Earnings of discontinued activities	32.3
Minority interests	1.1
Net earnings	1.7

Earnings of discontinued activities include cash flows from these activities from May 7, 2004, to the selling date, net capital gains stemming from divestments of certain Group assets in Germany, and the write-off of computer software existing prior to the acquisition which became subsequently redundant.

## Main impacts on Balance Sheet as of December 31, 2004

*In millions of euros*

<b>Assets</b>	
Net intangible assets	228.3
Property, plant & equipment	986.4
Net goodwill	1,492.2
<b>Liabilities and shareholders' equity</b>	
Provisions and deferred income taxes	762.8
Net indebtedness	1,988.2

## Main impacts on Statement of changes in financial position as of December 31, 2004

*In millions of euros*

Acquisition debt (including acquisition costs)	(2,735.6)
Sales of discontinued activities	699.0

# Statement of earnings

Years ended December 31

In millions of euros

	Notes	2002	2003	2004
Net sales <sup>(1)</sup>	(1)	7,900.4	8,393.6	9,376.2
Cost of products sold, operating expenses and innovation costs	(2)	(5,925.6)	(6,388.9)	(7,184.9)
Depreciation and amortization	(3)	(813.2)	(808.7)	(914.4)
<b>Operating income<sup>(1)</sup></b>		<b>1,161.6</b>	<b>1,196.0</b>	<b>1,276.9</b>
Financial income (expense), net	(4)	(127.2)	(106.0)	(143.4)
Equity in earnings of companies accounted for by the equity method <sup>(1)</sup>		56.0	49.5	36.5
Other income (expense), net	(5)	(49.6)	(50.4)	(67.7)
Earnings of discontinued activities	(6)			32.3
<b>Earnings before income taxes</b>		<b>1,040.8</b>	<b>1,089.1</b>	<b>1,134.6</b>
Current income taxes	(7)	(343.8)	(362.6)	(337.7)
Deferred income taxes	(7)	53.6	55.3	44.9
<b>Earnings before minority interests</b>		<b>750.6</b>	<b>781.8</b>	<b>841.8</b>
Minority interests		47.4	56.2	64.3
<b>Net earnings</b>		<b>703.2</b>	<b>725.6</b>	<b>777.5</b>
<b>Net earnings per share (in euros)<sup>(2)</sup></b>	(8)	<b>6.42</b>	<b>6.68</b>	<b>7.20</b>

(1) For geographic information, see pages 122 to 124.

(2) Net earnings per share for 2002 and 2003 have been adjusted to take into account the bonus share allocation in 2004 of one share for ten held.

## Note (1) - Net sales - analysis by business lines

In millions of euros

	2002	in %	2003	in %	2004	in %
Gas and Services	6,887.0	87.2	7,388.5	88.1	8,275.2	88.2
AL Welding Group	460.1	5.8	423.2	5.0	485.7	5.2
Other activities	343.4	4.3	328.8	3.9	338.4	3.6
Engineering	209.9	2.7	253.1	3.0	276.9	3.0
<b>Total</b>	<b>7,900.4</b>	<b>100.0</b>	<b>8,393.6</b>	<b>100.0</b>	<b>9,376.2</b>	<b>100.0</b>

AL Welding Group produces and distributes welding and cutting consumables and equipment.

Other activities mainly include chemicals and diving.

Total foreign exchange impact on sales in 2004, compared with 2003, was -2.8%, i.e. 231.5 million euros. This impact was linked to the conversion of the financial statements of the Group's foreign subsidiaries into euros. It stemmed from the appreciation of the euro against foreign currencies, mainly the US dollar and the yen. Total foreign exchange impact on sales in 2003 versus 2002 was -6.3%.

The effect of changes in the consolidation perimeter on 2004 sales, compared with 2003, was +8.1%, i.e. 682.0 million euros at constant exchange rates). This was principally linked with the consolidation of Messer (+5.6%) in Germany, the United Kingdom and the United States from May 7, 2004. The remainder of this effect stemmed mainly from the full-year consolidation by the proportional method of SOAEO's subsidiaries in Singapore and Hong Kong (+1.3%), and from the acquisition of Livingston's metrology activities (+0.4%). The effect of changes in the consolidation perimeter on 2003 sales, compared with 2002 was +5.5%.

The impact of natural gas on sales was +0.5% in 2004 compared with 2003 (i.e. 36.1 million euros excluding foreign exchange). This impact concerned essentially the Group's North American activities. In 2003, compared with 2002, the impact was +2.9%.

## Note (2) - Cost of products sold, operating expenses and innovation costs

In millions of euros

	2002	2003	2004
Purchases including inventory variations	(2,688.4)	(2,999.2)	(3,432.5)
Salaries and employee benefits	(1,590.8)	(1,641.4)	(1,828.8)
Other operating expenses	(1,964.6)	(2,069.3)	(2,325.9)
	<b>(6,243.8)</b>	<b>(6,709.9)</b>	<b>(7,587.2)</b>
Miscellaneous operating income	49.5	48.5	83.0
Production costs of fixed assets capitalized	268.7	272.5	319.3
<b>Total</b>	<b>(5,925.6)</b>	<b>(6,388.9)</b>	<b>(7,184.9)</b>

Innovation includes activities defined as such by the OECD, notably in the field of research and development.

In 2004, innovation costs amount to 161.5 million euros, of which research and development expenses are 103.3 million euros.

In 2003 and 2002, these costs amount to 149.5 and 151.8 million euros of which research and development expenses are 94.3 and 92.1 million euros.

Other operating expenses include net reversal of provisions of 7.2 million euros in 2004 compared with net provisions of -20.7 million euros in 2003 and -34.1 million euros in 2002.

These provisions are mainly related to pension costs, termination indemnities and other benefits, doubtful accounts receivables and payables, engineering contracts completion costs and employee profit sharing.

## Note (3) - Depreciation and amortization

In millions of euros

	2002	2003	2004
Intangible assets	(35.4)	(44.7)	(65.8)
Property, plant and equipment	(740.1)	(724.6)	(781.7)
Goodwill	(37.7)	(39.4)	(66.9)
<b>Total</b>	<b>(813.2)</b>	<b>(808.7)</b>	<b>(914.4)</b>

## Note (4) - Financial income (expense), net

In millions of euros

	2002	2003	2004
Financial expenses net of interest income	(133.3)	(110.3)	(150.4)
Financial expenses capitalized	4.2	2.7	3.4
Dividends received	1.9	1.6	3.6
<b>Total</b>	<b>(127.2)</b>	<b>(106.0)</b>	<b>(143.4)</b>

## Note (5) - Other income (expense), net

In millions of euros

	2002	2003	2004
Gains on disposal of fixed assets and investments	8.4	2.2	12.7
Miscellaneous income and expenses (net)	(19.9)	(9.8)	(54.2)
Exceptional provisions	(38.1)	(42.8)	(26.2)
<b>Total</b>	<b>(49.6)</b>	<b>(50.4)</b>	<b>(67.7)</b>

Gains on disposal of fixed assets and investments are of ordinary and repetitive nature.

Miscellaneous income and expenses (net) include notably the exceptional costs related to management operations, notably the changes in some organizations within the Group.

In 2003, they comprise a net profit of 17.5 million euros arising from the consolidation of Japan Air Gases.

In 2002 and 2003, non-recurring provisions have been recorded to cover customers credit risks, expenses related to the harmonization of the Group's information systems, and exceptional depreciation of assets or deferred charges linked to the development of new activities.

In 2004, they include provisions for risks linked to the implementation of advanced technologies.

### Note (6) - Earnings of discontinued activities

For details on earnings of discontinued activities, please turn to the section on the "Impact of the acquisition of Messer activities on consolidated financial statements" (page 114).

### Note (7) - Income taxes

Reconciliation between the standard tax rate and the effective Group tax rate:

(in %)

	2002	2003	2004
Standard tax rate	36.5	35.9	34.5
Impact of transactions taxed at reduced rates	(2.9)	(3.2)	(3.2)
Impact of tax rates changes	(1.1)	0.2	(0.4)
Impact of permanent differences and others	(3.0)	(3.3)	(3.4)
Effective Group tax rate	29.5	29.6	27.5

The standard tax rate is the average rate obtained by applying the statutory tax rate for each country to their related earnings before tax.

Effective Group tax rate is determined as follows: (current and deferred income taxes)/(earnings before income taxes excluding equity in earnings of companies accounted for by the equity method).

In France, L'Air Liquide S.A. has elected to determine French income taxes on a consolidated basis, including all French subsidiaries complying with the requirements.

Foreign subsidiaries have also elected to apply for similar rules wherever this is allowed under local regulations.

### Note (8) - Net earnings per share - dilutive impact of stock options

	2002	2003	2004
Net earnings (in millions of euros)	703.2	725.6	777.5
Adjusted average number of shares <sup>(1)</sup>	109,477,929	108,624,523	107,937,967
Dilutive impact of stock options	2,375,017	3,406,992	3,586,602
Adjusted average number of shares - diluted	111,852,946	112,031,515	111,524,569
Net earnings per share (in euros) <sup>(2)</sup>	6.42	6.68	7.20
Diluted earnings per share (in euros) <sup>(3)</sup>	6.29	6.48	6.97

(1) The adjusted weighted number of share ; outstanding during the year is calculated by excluding treasury shares; the number of shares for 2002 and 2003 have been adjusted to take into account the allocation, in 2004, of one bonus share for ten shares held.

(2) The 2002 and 2003 net earnings per share take into account the allocation in 2004 of one bonus share for ten shares held.

(3) The calculation takes into account stock options granted as of December 31, of each fiscal year, assuming that all these options would be exercised.

No other financial instrument which may generate additional dilution of net earnings per share has been created by the Group.

# Balance sheet

Years ended December 31

## Assets

In millions of euros

	Notes	2002	2003	2004
<b>Fixed assets</b>				
Intangible assets	(A)	449.3	474.3	769.1
Less: accumulated depreciation		(244.2)	(250.3)	(297.8)
		<b>205.1</b>	<b>224.0</b>	<b>471.3</b>
Property, plant and equipment	(B)	13,696.5	13,913.7	15,432.5
Less: accumulated depreciation	(B)	(7,542.5)	(7,986.2)	(8,516.1)
	(1)	<b>6,154.0</b>	<b>5,927.5</b>	<b>6,916.4</b>
Goodwill	(C)	1,308.6	1,259.0	2,800.0
Less: accumulated depreciation		(408.0)	(431.6)	(489.1)
		<b>900.6</b>	<b>827.4</b>	<b>2,310.9</b>
		<b>7,259.7</b>	<b>6,978.9</b>	<b>9,698.6</b>
<b>Other non-current assets</b>				
Long-term loans, receivables and other assets		149.8	156.1	259.6
Investments in companies accounted for by the equity method	(1) (D)	313.4	268.1	206.5
Other investments	(E)	111.1	100.4	70.0
		<b>574.3</b>	<b>524.6</b>	<b>536.1</b>
Total long-term assets	(1)	<b>7,834.0</b>	<b>7,503.5</b>	<b>10,234.7</b>
Inventories	(F)	<b>563.0</b>	<b>655.5</b>	<b>758.6</b>
<b>Current assets</b>				
Trade receivables	(G)	1,848.4	1,945.6	2,250.3
Prepaid expenses and other assets	(G)	360.0	462.0	396.4
Short-term loans	(I)	46.5	43.1	61.3
Marketable securities	(I)	41.4	79.5	396.9
Cash	(I)	265.7	315.6	326.8
		<b>2,562.0</b>	<b>2,845.8</b>	<b>3,431.7</b>
Total current assets and inventories		<b>3,125.0</b>	<b>3,501.3</b>	<b>4,190.3</b>
Total assets		<b>10,959.0</b>	<b>11,004.8</b>	<b>14,425.0</b>

(1) For geographic information, see pages 122 to 124.

## Liabilities and shareholders' equity

In millions of euros

	Notes	2002	2003	2004
<b>Shareholder's equity</b>				
Capital stock		1,109.0	1,099.0	1,201.1
Additional paid-in capital		12.1	67.3	76.8
Retained earnings		3,626.4	3,434.8	3,480.3
Treasury shares		(231.4)	(247.5)	(162.1)
Net earnings for the year		703.2	725.6	777.5
	(2)	5,219.3	5,079.2	5,373.6
Minority interests	(2)	232.8	460.0	341.5
Provisions and deferred income taxes	(H)	1,170.9	1,104.0	1,793.7
Long-term debt	(I)	2,289.2	1,985.3	4,300.8
<b>Total capital employed</b>				
		8,912.2	8,628.5	11,809.6
<b>Current liabilities</b>				
Trade payables		834.8	936.5	1,104.4
Other liabilities		1,125.3	1,256.7	1,236.5
Short-term debt	(I)	86.7	183.1	274.5
<b>Total current liabilities</b>				
		2,046.8	2,376.3	2,615.4
<b>Total liabilities and shareholders' equity</b>				
		10,959.0	11,004.8	14,425.0
Commitments and contingencies	(K)			

(2) See Statement of shareholders' equity - Minority interests, page 121.



# Statement of changes in financial position

Years ended December 31

*In millions of euros*

	2002	2003	2004
Net earnings	703.2	725.6	777.5
Minority interests	47.4	56.2	64.3
Depreciation and amortization	813.2	808.7	914.4
Deferred income taxes	(53.6)	(55.3)	(46.8)
Increase (decrease) in provisions	18.4	(0.9)	(9.1)
Equity in earnings of companies accounted for by the equity method, less dividends received	(14.5)	7.9	(5.4)
<b>Funds from operations</b>	<b>1,514.1</b>	<b>1,542.2</b>	<b>1,694.9</b>
including funds from discontinued activities			27.0
Distribution:			
- L'Air Liquide S.A.	(366.1)	(414.2)	(336.1)
- Minority interests	(29.6)	(44.7)	(153.4)
Industrial investments	(632.8)	(746.8)	(875.4)
Financial investments	(306.9)	(74.9)	(2,858.5)
Sales of fixed assets and investments	59.0	40.2	40.9
Sales of discontinued activities			699.0
Other non-current assets and miscellaneous	5.5	5.4	(31.9)
Change in working capital	182.8	(15.6)	(234.3)
<b>Net before financing</b>	<b>426.0</b>	<b>291.6</b>	<b>(2,054.8)</b>
Proceeds from issues of capital stock	3.4	12.1	13.3
Purchase of treasury shares	(91.5)	(150.8)	(44.4)
Effect of exchange rate changes	194.4	151.5	88.7
Net indebtedness of newly consolidated companies	28.9	(12.3)	(62.9)
<b>Change in net indebtedness</b>	<b>561.2</b>	<b>292.1</b>	<b>(2,060.1)</b>
Net indebtedness at beginning of year	(2,583.5)	(2,022.3)	(1,730.2)
Net indebtedness at year-end	(2,022.3)	(1,730.2)	(3,790.3)
<b>Net indebtedness analysis</b>			
Short-term loans	46.5	43.1	61.3
Marketable securities	41.4	79.5	396.9
Cash	265.7	315.6	326.8
Long-term debt	(2,289.2)	(1,985.3)	(4,300.8)
Short-term debt	(86.7)	(183.1)	(274.5)
<b>Net indebtedness at year-end</b>	<b>(2,022.3)</b>	<b>(1,730.2)</b>	<b>(3,790.3)</b>

# Statement of shareholders' equity - Minority interests

In millions of euros

	Capital stock	Additional paid-in capital	Retained earnings	Cumulative conversion adjustment	Treasury shares	Total share- holders' equity	Minority interests
<b>Balance as of December 31, 2001</b>	<b>999.0</b>	<b>259.2</b>	<b>4,514.6</b>	<b>(54.6)</b>	<b>(364.9)</b>	<b>5,353.3</b>	<b>323.0</b>
Increases/Decreases in capital stock	0.6	3.6				4.2	1.1
Bonus share allocation	125.9	(42.0)	(83.9)			0.0	
Distribution			(366.1)			(366.1)	(29.6)
Foreign currency translation				(374.2)		(374.2)	(34.3)
Capital decrease due to cancellation of treasury shares	(16.5)	(208.7)			225.2	0.0	
Purchase in treasury shares					(91.5)	(91.5)	
Miscellaneous			(9.4)		(0.2)	(2) (9.6)	(3) (74.8)
2002 net earnings			703.2			703.2	47.4
<b>Balance as of December 31, 2002</b>	<b>1,109.0</b>	<b>12.1</b>	<b>4,758.4</b>	<b>(428.8)</b>	<b>(231.4)</b>	<b>5,219.3</b>	<b>232.8</b>
Increases/Decreases in capital stock	1.0	5.3				6.3	5.8
Distribution			(414.2)			(414.2)	(44.7)
Foreign currency translation				(302.8)	0.2	(302.6)	(36.6)
Capital decrease due to cancellation of treasury shares	(11.0)		(123.5)		134.5	0.0	
Purchase in treasury shares					(150.8)	(150.8)	
Impact of merger		(4) 49.9	(4) (49.9)			0.0	
Miscellaneous			(4.4)			(2) (4.4)	(3) 246.5
2003 net earnings			725.6			725.6	56.2
<b>Balance as of December 31, 2003</b>	<b>1,099.0</b>	<b>67.3</b>	<b>4,892.0</b>	<b>(731.6)</b>	<b>(247.5)</b>	<b>5,079.2</b>	<b>460.0</b>
Increases/Decreases in capital stock	1.5	9.5				11.0	2.3
Bonus share allocation	111.5		(111.5)			0.0	
Distribution			(336.1)			(336.1)	(153.4)
Foreign currency translation				(106.3)	0.1	(106.2)	(14.5)
Capital decrease due to cancellation of treasury shares	(11.0)		(118.7)		129.7	0.0	
Purchase in treasury shares					(44.4)	(44.4)	
Miscellaneous			(7.4)			(2) (7.4)	(3) (17.2)
2004 net earnings			777.5			777.5	64.3
<b>Balance as of December 31, 2004 (1)</b>	<b>1,201.0</b>	<b>76.8</b>	<b>5,095.8</b>	<b>(*) (837.9)</b>	<b>(162.1)</b>	<b>5,373.6</b>	<b>341.5</b>

(\*) Including, as of December 31, 2004, -181.7 million euros of cumulative translation adjustment for the euro area and -147.1 million euros concerning the devaluation of the Argentinean Peso.

(1) As of December 31, 2004, the number of shares issued is 109,180,823 at per value 11 euros. In 2004, movements on capital stock have been as follows:

- 135,198 shares issued for cash, resulting from the exercise of stock options,
- capital decrease due to cancellation of 1,000,000 treasury shares,
- creation of 9,898,377 shares issued for cash, resulting from the allocation of one bonus share for ten shares held,
- creation of 234,331 shares issued for cash, resulting from a 10% increase in the number of shares received during the one-for-ten bonus share allocation.

The total number of treasury shares amounts to 1,376,249 shares as of December 31, 2004 (including 1,346,431 shares held by L'Air Liquide S.A.). In the fiscal year, the movements on the treasury shares have been as follows:

- cancellation of 1,000,000 shares,
- acquisition of 337,243 shares for an average price of 131.6 euros.

(2) Including withholding taxes paid by some subsidiaries (amounts included in the overall calculation of the withholding tax on dividends paid by L'Air Liquide S.A.).

(3) Corresponding to changes of the Group percentage of interest in consolidated subsidiaries:

- in 2002, purchase of minority interests of Air Liquide Japan;
- in 2003, consolidation of Japan Air Gases;
- in 2004, purchase of minority interests of Air Liquide Japan.

(4) Consists mainly in a 60.9 million euros merger bonus accounted for consequently to the merger of Cofigaz into L'Air Liquide S.A. and offset by a 11.0 million euros transfer from Additional paid-in-capital to Retained earnings.

# Geographic information

2004

## Statement of earnings

In millions of euros

	France	Europe (excluding France)	Americas	Asia- Pacific	Africa	Total
<b>Net sales</b>						
Gas and Services	1,619.6	2,753.9	2,237.7	1,512.1	151.9	8,275.2
AL Welding Group	165.9	319.8				485.7
Other activities	230.5	43.5	57.8	6.6		338.4
<b>Sub-total without Engineering/Construction</b>	<b>2,016.0</b>	<b>3,117.2</b>	<b>2,295.5</b>	<b>1,518.7</b>	<b>151.9</b>	<b>9,099.3</b>
Engineering/Construction	69.5	36.8	33.3	88.3	49.0	276.9
<b>Total</b>	<b>2,085.5</b>	<b>3,154.0</b>	<b>2,328.8</b>	<b>1,607.0</b>	<b>200.9</b>	<b>9,376.2</b>
<b>Operating Income</b>						
Gas and Services	296.8	502.2	305.5	213.0	33.9	1,351.4
Other activities	43.5	38.0	5.9	4.9		92.3
R&D centers/corporate					(166.8)	(166.8)
<b>Total</b>	<b>340.3</b>	<b>540.2</b>	<b>311.4</b>	<b>217.9</b>	<b>33.9</b>	<b>1,276.9</b>
<b>Equity in earnings of companies accounted for by the equity method</b>	<b>10.0</b>	<b>6.1</b>	<b>1.1</b>	<b>12.4</b>	<b>6.9</b>	<b>36.5</b>

## Balance sheet

Property, plant and equipment (net)	872.4	2,756.2	2,163.9	1,007.7	116.2	6,916.4
Investments in companies accounted for by the equity method	59.8	35.0	13.3	78.8	19.6	206.5
<b>Total long-term assets</b>	<b>1,292.8</b>	<b>4,753.9</b>	<b>2,705.6</b>	<b>1,313.5</b>	<b>168.9</b>	<b>10,234.7</b>

### Notes:

- Net sales are based upon the location of operations except for the engineering activity which is based upon customer location.
  - Air Liquide Welding Group produces and distributes welding and cutting consumables and equipment. Other activities mainly include chemicals and diving.
  - In 2004, SOXAL (Singapore) and HKOAC (Hong Kong), subsidiaries of SOAEO, were consolidated by the proportional method.
- Comparisons with sales and operating income should be made with 2002 and 2003 pro forma information.

2003

Statement of earnings

In millions of euros

	France	Europe (excluding France)	Americas	Asia- Pacific	Africa	Total
<b>Net sales</b>						
Gas and Services	1,544.8	2,232.3	2,131.4	1,336.3	143.7	7,388.5
AL Welding Group	148.7	274.5				423.2
Other activities	222.9	38.9	60.4	6.6		328.8
<b>Sub-total without Engineering/Construction</b>	<b>1,916.4</b>	<b>2,545.7</b>	<b>2,191.8</b>	<b>1,342.9</b>	<b>143.7</b>	<b>8,140.5</b>
Engineering/Construction	63.9	34.3	12.8	103.8	38.3	253.1
<b>Total</b>	<b>1,980.3</b>	<b>2,580.0</b>	<b>2,204.6</b>	<b>1,446.7</b>	<b>182.0</b>	<b>8,393.6</b>
<b>Operating Income</b>						
Gas and Services	313.9	466.0	278.3	166.5	31.4	1,256.1
Other activities	48.2	29.2	4.3	4.1		85.8
R&D centers/corporate					(145.9)	(145.9)
<b>Pro forma</b>	<b>362.1</b>	<b>495.2</b>	<b>282.6</b>	<b>170.6</b>	<b>31.4</b>	<b>1,196.0</b>
Equity in earnings of companies accounted for by the equity method	5.3	4.1	1.5	31.9	6.7	49.5

Balance sheet

Property, plant and equipment (net)	862.1	2,082.7	1,964.2	897.0	121.5	5,927.5
Investments in companies accounted for by the equity method	56.9	31.7	20.9	139.3	19.3	268.1
<b>Total long-term assets</b>	<b>1,257.0</b>	<b>2,564.7</b>	<b>2,241.8</b>	<b>1,268.1</b>	<b>171.9</b>	<b>7,503.5</b>

Pro forma

Net sales	1,980.3	2,580.0	2,204.6	1,556.6	182.0	8,503.5
Operating income	362.1	495.2	282.6	194.9	31.4	1,220.3

Notes:

- Net sales are based upon the location of operations except for the engineering activity which is based upon customer location.

- Air Liquide Welding Group produces and distributes welding and cutting consumables and equipment. Other activities mainly include chemicals and diving.

Pro forma includes 50% of net sales and operating income of SOXAL (Singapore) and HKOAC (Hong Kong), SOAEO subsidiaries accounted for by the equity method.

2002

Statement of earnings

In millions of euros

	France	Europe (excluding France)	Americas	Asia- Pacific	Africa	Total
<b>Net sales</b>						
Gas and Services	1,465.2	2,113.5	2,226.4	962.2	119.7	6,887.0
AL Welding Group	176.2	283.9				460.1
Other activities	222.8	38.4	75.0	7.2		343.4
Sub-total without Engineering/Construction	<b>1,864.2</b>	<b>2,435.8</b>	<b>2,301.4</b>	<b>969.4</b>	<b>119.7</b>	<b>7,690.5</b>
Engineering/Construction	66.6	34.7	41.3	46.6	20.7	209.9
<b>Total</b>	<b>1,930.8</b>	<b>2,470.5</b>	<b>2,342.7</b>	<b>1,016.0</b>	<b>140.4</b>	<b>7,900.4</b>
<b>Operating Income</b>						
Gas and Services	303.0	449.3	308.9	121.6	22.6	1,205.4
Other activities	56.3	31.6	1.7	5.8		95.4
R&D centers/corporate					(139.2)	(139.2)
<b>Total</b>	<b>359.3</b>	<b>480.9</b>	<b>310.6</b>	<b>127.4</b>	<b>22.6</b>	<b>(139.2)</b>
<b>Equity in earnings of companies accounted for by the equity method</b>	<b>10.2</b>	<b>4.4</b>	<b>1.4</b>	<b>33.1</b>	<b>6.9</b>	<b>56.0</b>

Balance sheet

Property, plant and equipment, (net)	863.1	2,061.1	2,411.5	730.8	87.5	6,154.0
Investments in companies accounted for by the equity method	56.2	27.7	28.1	160.7	40.7	313.4
<b>Total long-term assets</b>	<b>1,251.4</b>	<b>2,564.4</b>	<b>2,709.2</b>	<b>1,156.9</b>	<b>152.1</b>	<b>7,834.0</b>

Pro forma

Net sales	1,930.8	2,470.5	2,342.7	1,133.7	140.4	8,018.1
Operating income	359.3	480.9	310.6	155.2	22.6	(139.2)

Notes:

- Net sales are based upon the location of operations except for the engineering activity which is based upon customer location.

- Air Liquide Welding Group produces and distributes welding and cutting consumables and equipment. Other activities mainly include chemicals and diving.

Pro forma includes 50% of net sales and operating income of SOXAL (Singapore) and HKOAC (Hong Kong), SOAEO subsidiaries accounted for by the equity method.

# Notes to the consolidated financial statements

## Note (A) - Intangible assets

### Gross Value

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations <sup>(1)</sup>	As of December 31
<b>2003</b>						
Start-up costs	39.0	2.5	(1.4)	(1.0)	(3.8)	35.3
Deferred charges	89.2	35.1	(4.8)	(0.3)	(13.6)	105.6
Business	25.8	0.2		(1.1)	8.7	33.6
Other intangible assets	295.3	32.7	(5.2)	(9.3)	(13.7)	299.8
<b>Total</b>	<b>449.3</b>	<b>70.5</b>	<b>(11.4)</b>	<b>(11.7)</b>	<b>(22.4)</b>	<b>474.3</b>
<b>2004</b>						
Start-up costs	35.3	0.7	(3.5)	(0.4)	(0.6)	31.5
Deferred charges	105.6	5.3	(2.8)	0.1	(79.7)	28.5
Business	33.6	0.1	(2.8)	0.2	5.3	36.4
Other intangible assets	299.8	46.4	(13.2)	(11.6)	351.3	672.7
<b>Total</b>	<b>474.3</b>	<b>52.5</b>	<b>(22.3)</b>	<b>(11.7)</b>	<b>276.3</b>	<b>769.1</b>

### Depreciation

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations <sup>(1)</sup>	As of December 31
<b>2003</b>						
Start-up costs	(35.1)	(17.7)	0.7	1.0	22.3	(28.8)
Business	(13.9)	(3.0)		0.6	(1.6)	(17.9)
Other intangible assets	(195.2)	(24.0)	5.0	4.0	6.6	(203.6)
<b>Total</b>	<b>(244.2)</b>	<b>(44.7)</b>	<b>5.7</b>	<b>5.6</b>	<b>27.3</b>	<b>(250.3)</b>
<b>2004</b>						
Start-up costs	(28.8)	(6.4)	3.4	0.3	5.7	(25.8)
Business	(17.9)	(3.5)	1.3	(0.1)	(2.0)	(22.2)
Other intangible assets	(203.6)	(55.8)	12.2	2.3	(4.9)	(249.8)
<b>Total</b>	<b>(250.3)</b>	<b>(65.7)</b>	<b>16.9</b>	<b>2.5</b>	<b>(1.2)</b>	<b>(297.8)</b>

(1) Other variations on gross value and depreciation mainly correspond to accounts reclassifications and effects of changes in the consolidation perimeter. In 2003 in particular, the consolidation of Japan Air Gases and, in 2004, the consolidation of Messer for 242.0 million euros, including 277.9 million euros corresponding to the valuation of some customer contracts in Germany and in the United States as part as the allocation of goodwill, and -35.9 million euros corresponding to the write-off of computer software existing prior to the acquisition which became subsequently redundant. Intangible assets corresponding to customer contracts are amortized over a 25-year period.

Deferred charges mainly include some capitalized IT expenses, as well as incorporation or capital increases costs. They are depreciated over a three-to-five-year period. Some capitalized IT expenses have been reclassified into other intangible assets in 2004.

Other intangible assets mainly consist of customer contracts resulting from Messer acquisition, concessions, computer software, licences, patents acquired and some capitalized IT expenses. Depreciation is computed over the estimated useful lives or legal limits of the assets.

Industrial investments included in the Statement of changes in financial position correspond to the increase of intangible assets and the increase of property, plant and equipment net of the variation of the balance of fixed assets suppliers between January 1, and December 31.

## Note (B) - Property, plant and equipment

Property, plant and equipment are mainly used in the gas activity.

### Gross Value

*In millions of euros*

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations <sup>(1)</sup>	As of December 31
<b>2003</b>						
Land	192.9	0.4	(4.9)	(17.3)	72.7	243.8
Buildings	773.2	3.8	(18.3)	(42.5)	92.3	808.5
Equipment, cylinders, installations	12,404.9	154.5	(155.1)	(815.5)	958.1	12,546.9
<b>Total property, plant and equipment in service</b>	<b>13,371.0</b>	<b>158.7</b>	<b>(178.3)</b>	<b>(875.3)</b>	<b>1,123.1</b>	<b>13,599.2</b>
Construction in progress	325.5	512.2		(36.4)	(486.8)	314.5
<b>Total property, plant and equipment</b>	<b>13,696.5</b>	<b>670.9</b>	<b>(178.3)</b>	<b>(911.7)</b>	<b>636.3</b>	<b>13,913.7</b>
<b>2004</b>						
Land	243.8	5.3	(10.2)	(5.5)	17.2	250.6
Buildings	808.5	14.2	(17.4)	(17.8)	291.7	1,079.2
Equipment, cylinders, installations	12,546.9	204.6	(155.9)	(366.7)	1,372.2	13,601.1
<b>Total property, plant and equipment in service</b>	<b>13,599.2</b>	<b>224.1</b>	<b>(183.5)</b>	<b>(390.0)</b>	<b>1,681.1</b>	<b>14,930.9</b>
Construction in progress	314.5	638.8		(13.7)	(438.0)	501.6
<b>Total property, plant and equipment</b>	<b>13,913.7</b>	<b>862.9</b>	<b>(183.5)</b>	<b>(403.7)</b>	<b>1,243.1</b>	<b>15,432.5</b>

### Depreciation

*In millions of euros*

	As of January 1	Increase <sup>(2)</sup>	Decrease	Foreign exchange variation	Other variations <sup>(1)</sup>	As of December 31
<b>2003</b>						
Buildings	(423.1)	(31.6)	11.6	21.7	(54.8)	(476.2)
Equipment, cylinders, installations	(7,119.4)	(702.5)	134.9	442.8	(265.8)	(7,510.0)
<b>Total property, plant and equipment in service</b>	<b>(7,542.5)</b>	<b>(734.1)</b>	<b>146.5</b>	<b>464.5</b>	<b>(320.6)</b>	<b>(7,986.2)</b>
<b>2004</b>						
Buildings	(476.2)	(36.6)	15.6	11.2	(1.8)	(487.8)
Equipment, cylinders, installations	(7,510.0)	(790.1)	127.7	206.0	(61.9)	(8,028.3)
<b>Total property, plant and equipment in service</b>	<b>(7,986.2)</b>	<b>(826.7)</b>	<b>143.3</b>	<b>217.2</b>	<b>(63.7)</b>	<b>(8,516.1)</b>

(1) Other variations on gross value and depreciation mainly correspond to accounts reclassifications and effects of changes in the consolidation perimeter, in particular:  
- in 2003, the consolidation of Japan Air Gases for which the impact on the gross value and the amortization is respectively 590.1 million euros and -322.1 million euros.  
- in 2004, the consolidation of Messer for which the impact on the gross value is 1,047.2 million euros.

(2) Depreciation on property, plant and equipment correspond to the increase of depreciation net of the decrease of investment grants.  
Industrial investments included in the Statement of changes in financial position correspond to the increase of intangible assets and the increase of property, plant and equipment net of the variation of the balance of fixed assets suppliers between January 1, and December 31.

## Note (C) - Goodwill

### Gross Value

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations <sup>(1)</sup>	As of December 31
2002	1,276.1	106.3		(60.9)	(12.9)	1,308.6
2003	1,308.6	28.0		(49.5)	(28.1)	1,259.0
2004	1,259.0	1,577.4	(3.9)	(36.4)	3.9	2,800.0

(1) Other variations mainly correspond to reclassifications and effects of changes in the consolidation perimeter in particular in 2003, the consolidation of Japan Air Gases.

The increase in goodwill mainly corresponds:

- for 2002, to the purchase of minority interests of Air Liquide Japan (Japan);
- for 2003, to the purchase of minority interests of Oy Polargas (Finland) and the acquisition of several companies which are not significant individually;
- for 2004, to the acquisition of Messer in Germany, the United Kingdom and the United States (1,517.2 million euros after foreign exchange impact on the United States) and of Livingston metrology activities in France, the Netherlands, Germany and Spain (20.1 million euros).

In 1994, a goodwill has been directly deducted from retained earnings. The impact on the net balance of the goodwill is 124.0 million euros as of December 31, 2004 (128.3 million euros in 2003 and 132.6 million euros in 2002), with no significant impact on net earnings.

### Depreciation

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations <sup>(2)</sup>	As of December 31
2002	(404.9)	(37.7)	0.5	21.2	12.9	(408.0)
2003	(408.0)	(39.4)		17.1	(1.3)	(431.6)
2004	(431.6)	(66.9)	1.2	7.8	0.4	(489.1)

(2) Other variations mainly correspond to reclassifications from gross value to depreciation.

## Note (D) - Investments in companies accounted for by the equity method

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations <sup>(1)</sup>	As of December 31
2002	303.0	56.0	(41.5)	(33.3)	29.2	313.4
2003	313.4	49.5	(57.4)	(33.4)	(4.0)	268.1
2004	268.1	36.5	(30.5)	2.0	(69.6)	206.5

(1) Other variations mainly correspond to changes in the consolidation perimeter. Particularly, the Egyptian entities bought to Messer were accounted for by the equity method in 2002. They were fully integrated in 2003. In 2004, this amount includes 67.0 million euros corresponding to the impact of change in the consolidation method of SOAEO subsidiaries in Singapore and Hong Kong, which are now accounted for by the proportional method.



In millions of euros

Group's part in companies accounted for by the equity method as of December 31, 2004	Equity in earnings	Shareholders' equity	Net Indebtedness
France	10.0	59.8	7.3
Europe (excluding France)	6.1	35.0	5.6
Americas	1.1	13.3	(3.8)
Asia-Pacific	12.4	78.8	11.4
Africa	6.9	19.6	(3.1)
<b>Total</b>	<b>36.5</b>	<b>206.5</b>	<b>17.4</b>

### Note (E) - Other Investments

In millions of euros

	2002	2003	2004
France	44.2	37.2	14.4
Europe (excluding France)	17.9	22.5	22.2
Americas	16.0	6.9	4.8
Asia-Pacific	33.0	33.8	28.6
<b>Total</b>	<b>111.1</b>	<b>100.4</b>	<b>70.0</b>

Other investments mainly include in France:

- the investment in "Air Liquide Ventures" venture capital fund amounting to 11.4 million euros as of December 31, 2004,
- in 2003, the shares of Arcelor representing 0.12% of its share capital as of December 31, 2003, acquired for a total amount of 28.6 million euros. This investment was sold in 2004.

Other investments are individually not significant.

### Note (F) - Inventories

In millions of euros

	2002	2003	2004
Raw materials and supplies	155.7	170.6	200.1
Finished and semi-finished goods	352.7	395.7	437.2
Work in progress (essentially engineering and construction contracts in progress)	162.5	167.1	239.1
Provision for obsolescence and loss on completion	(52.6)	(51.8)	(63.9)
<b>Total</b>	<b>618.3</b>	<b>681.6</b>	<b>812.5</b>
Advances received on contracts in progress	(55.3)	(26.1)	(53.9)
<b>Net</b>	<b>563.0</b>	<b>655.5</b>	<b>758.6</b>

The LIFO reserve amounts to 3.5 million euros in 2004 (no change with 2003 and 17.8 million euros in 2002).

### Note (G) - Trade receivables and other debtors

In millions of euros

	2002	2003	2004
Trade receivables	1,941.7	2,038.5	2,341.5
Provision	(93.3)	(92.9)	(91.2)
<b>Net</b>	<b>1,848.4</b>	<b>1,945.6</b>	<b>2,250.3</b>
Prepaid expenses and other assets	364.5	464.6	398.8
Provision	(4.5)	(2.6)	(2.4)
<b>Net</b>	<b>360.0</b>	<b>462.0</b>	<b>396.4</b>

Some subsidiaries have permanent programs of non-recourse sales of trade receivables. As of December 31, 2004, amounts sold and deducted from trade receivables are 74.5 million euros (165.3 and 162.7 million euros for 2003 and 2002).

## Note (H) - Provisions and deferred income taxes

In millions of euros

	As of January 1	Increase	Decrease	Foreign exchange variation	Other variations <sup>(1)</sup>	As of December 31
<b>2003</b>						
Deferred income taxes (assets)	(297.9)	(155.1)	16.7	5.6	(2.3)	(433.0)
Deferred income taxes (liabilities)	888.3	99.8	(16.7)	(63.5)	14.0	921.9
<b>Deferred income taxes (net)</b>	<b>590.4</b>	<b>(55.3)</b>	<b>0.0</b>	<b>(57.9)</b>	<b>11.7</b>	<b>488.9</b>
Employee termination indemnities & other benefits	234.0	37.3	(31.8)	(9.9)	28.4	258.0
Provision for the engineering activity	45.0	24.8	(34.0)	(0.6)		35.2
Badwill <sup>(2)</sup>	47.6		(19.2)	(2.6)	(25.8)	0.0
Other risks and accrued expenses <sup>(3)</sup>	176.1	121.4	(63.2)	(4.5)	17.1	246.9
Investment grants & deferred revenues	70.4	5.1	(9.8)	(0.1)	0.4	66.0
Employee profit sharing	7.4	8.7	(6.7)		(0.4)	9.0
<b>Provisions</b>	<b>580.5</b>	<b>197.3</b>	<b>(164.7)</b>	<b>(17.7)</b>	<b>19.7</b>	<b>615.1</b>
<b>Total</b>	<b>1,170.9</b>	<b>142.0</b>	<b>(164.7)</b>	<b>(75.6)</b>	<b>31.4</b>	<b>1,104.0</b>
<b>2004</b>						
Deferred income taxes (assets)	(433.0)	(68.2)	44.4	3.4	(88.6)	(542.0)
Deferred income taxes (liabilities)	921.9	42.7	44.9	(35.6)	372.0	1,345.9
<b>Deferred income taxes (net)</b>	<b>488.9</b>	<b>(25.5)</b>	<b>89.3</b>	<b>(32.2)</b>	<b>283.4</b>	<b>803.9</b>
Employee termination indemnities & other benefits	258.0	24.4	(17.4)	(6.9)	212.8	470.9
Provision for the engineering activity	35.2	46.5	(27.2)	(0.6)	3.3	57.2
Other risks and accrued expenses <sup>(3)</sup>	246.9	51.9	(82.4)	(2.4)	169.6	383.6
Investment grants & deferred revenues	66.0	5.9	(8.4)		5.5	69.0
Employee profit sharing	9.0	5.8	(5.7)			9.1
<b>Provisions</b>	<b>615.1</b>	<b>134.5</b>	<b>(141.1)</b>	<b>(9.9)</b>	<b>391.2</b>	<b>989.8</b>
<b>Total</b>	<b>1,104.0</b>	<b>109.0</b>	<b>(51.8)</b>	<b>(42.1)</b>	<b>674.6</b>	<b>1,793.7</b>

(1) Other variations mainly correspond to reclassifications and effects of changes in the consolidation perimeter.

At year-end 2004, the consolidation of Messer in Germany, the United Kingdom and the United States resulted in the following changes to the consolidation perimeter:

- 209.2 million euros for Employee termination indemnities & other benefits,
- 184.4 million euros for Other risks and accrued expenses, including restructuring costs,
- 369.2 million euros for Deferred taxes liabilities.

(2) Badwill resulting from the acquisition of Messer Griesheim GmbH subsidiaries in Argentina and Brazil in 2001 have been mainly allocated to the relating assets or reversed in the net earnings in 2003.

(3) Including provisions for identified tax and industrial litigations, restructuring costs, and accelerated depreciation.

Nature of deferred income taxes are detailed into "Principles and methods of consolidation". In addition, deferred income taxes (assets) related to tax losses are not significant.

The increase (decrease) in provisions indicated in the Statement of changes in financial position corresponds to the net movement of provisions, excluding movements of investment grants and other items with no financial consequences.

None of the various known cases of litigation in which companies of the Group are involved, included environmental risks, is expected to have a significant effect on the Group's consolidated financial position, beyond provisions set up for that purpose.

## Note (I) - Net indebtedness

### Net indebtedness

In millions of euros

	2002	2003	2004
Long-term debt	2,289.2	1,985.3	4,300.8
Short-term debt (including the short-term portion of long-term debt)	86.7	183.1	274.5
<b>Total debt</b>	<b>2,375.9</b>	<b>2,168.4</b>	<b>4,575.3</b>
Short-term loans, marketable securities and cash	(353.6)	(438.2)	(785.0)
<b>Net indebtedness</b>	<b>2,022.3</b>	<b>1,730.2</b>	<b>3,790.3</b>

Maturity profile of long-term debt as of December 31, 2004, is as follows:

(After covering short-term debt by the long-term bank confirmed non-used credit lines).

In millions of euros

2006	102.8
2007	759.0
2008	125.9
2009	1,415.5
2010	510.7
2011	379.8
2012 and beyond	1,007.1
<b>Total</b>	<b>4,300.8</b>

### Analysis of net indebtedness by currency

In millions of euros

	2002	2003	2004
EUR (1)	962.1	979.7	2,717.7
USD and CAD	780.5	615.6	853.4
JPY (2)	235.0	133.2	223.4
Other currencies	44.7	1.7	(4.2)
<b>Net indebtedness</b>	<b>2,022.3</b>	<b>1,730.2</b>	<b>3,790.3</b>

(1) Changes in euro indebtedness in 2004 mainly resulted from the acquisition of Messer.

(2) Changes in yen indebtedness mainly resulted in 2002 from the acquisition of Air Liquide Japan minority interests, in 2003 from the Japan Air Gases cash integration, and in 2004 from the exceptional payment of dividends of this subsidiary.

Debt denominated in foreign currencies is repaid from funds from operations (cash flow) in the corresponding currency.

A portion of long-term debt was secured by assets pledged with a value of 39 million euros in 2004.

## Note (J) - Financial instruments

### Interest rate risk

In order to reduce its exposure to interest rate risk, the Group may enter into contracts to fix interest rates (swaps), or protect against a rise in interest rates (caps).

The interest rate differential received or paid is recorded in net financial expenses.

Fixed rate debt including the effect of interest rate swaps represents 61% of the total average indebtedness in 2004; the percentage represents 84% including interest rate caps.

The weighted average interest rate on total indebtedness is 4% for the year 2004.

### Foreign exchange risk

The Group enters into hedging contracts for exchange risk arising from economic transactions.

As a result, the Group has no exchange risk exposure.

These transactions are entered into with carefully selected bank counterparties.

## Note (K) - Commitments and contingencies

In millions of euros

	2003	2004
Commitments and contingencies linked to:		
Purchase of fixed assets and investments	262.7	204.6
Rentals and Leases	128.7	204.7
Energy purchases	87.5	165.1
Cogeneration overhauls commitments	71.2	47.0
IT Systems outsourcing in the United States	14.1	11.8
Guarantees and others	234.0	230.9
<b>Total</b>	<b>798.2</b>	<b>864.1 (1)</b>

(1) The Messer impact in 2004 amounts to 47.4 million euros.

Variation is mainly due to following events:

- purchase of shares, in particular Livingston in Europe and purchase of minority interests in the United States;
- new rental agreements in the United States;
- new contracts of energy supply in Europe.

Commitments are given for the Group's ordinary operations and will mostly be extinguished within the next two fiscal years.

## Post-closing Events

No significant post-closing event has occurred.

## Note (L) - Supervisory Board and officers' remuneration

Emoluments granted to the members of the Supervisory Board and officers of L'Air Liquide S.A., as compensation for their responsibilities in the Group, are as follows:

*In millions of euros*

	2002	2003	2004
Emoluments to the members of the Supervisory Board	0.6	0.7	0.7
Emoluments to the officers	5.6	6.6	8.4
<b>Total</b>	<b>6.2</b>	<b>7.3</b>	<b>9.1</b>

Officers include the members of both the Management Board and the Executive Committee.

The remuneration policy of senior management takes into account current market practices. It includes a substantial variable portion based on targets of Group earnings growth and individual performance. Details are provided on page 106 of this Management Report.

## Note (M) - Stock options and stock purchase plans (1)

Following the decisions of the General Shareholders' Meeting and on recommendation of the Selection and Remuneration Committee, the Board of Directors, the Supervisory Board and the Management Board have adopted, at Group level, stock options schemes for senior executives (including executive directors) and key employees.

These options schemes are intended to motivate key executives at Group level, retain the most performing individuals and focus them on the medium and long-term interests of shareholders.

In addition, on the occasion of Air Liquide's 100-Year celebration in 2002, stock options were granted on an exceptional basis to all Group employees worldwide with a maximum of 30 stock options each.

Stock options are granted for a minimal unitary amount equal to 100% of the average market price of the last 20 days prior to the day they were granted. The maximum exercise term is ten years for stock options granted before May 4, 2000, seven years for those granted between May 4, 2000, and April 8, 2004, and eight years for those granted since that date. A very small number of stock options have been granted on condition that certain objectives be achieved during a defined period.

During 2004, 585,306 adjusted stock options were granted at an average adjusted price of 126.64 euros to employees of the Company and of its subsidiaries. Also in 2004, 133,299 stock options were exercised at an average purchase price of 82.61 euros.

Total adjusted stock options, granted by the Board of Directors, the Supervisory Board and the Management Board under the schemes authorized by the General Shareholders' Meetings, but not exercised as of December 31, 2004, amounted to 3,775,531 options i.e. 3.46% of the capital shares (average purchase price: 121.41 euros), of which 584,122 options (at an average purchase price: 123.57 euros) have been granted to the present general management.

These stock options are to be exercised within a ten-year maximum term after the day they were granted for those granted by May 4, 2000, within a seven-year maximum term for those granted between May 4, 2000, and April 8, 2004, and within an eight-year term for those granted since that date.

Stock options granted between September 24, 1997, and May 12, 1999, are only exercisable after a five-year minimum term. The stock options granted since May 12, 1999, can only be exercised after a four-year minimum term from the date they were granted.

As of December 31, 2004, out of the total number of options authorized by the General Shareholders' Meeting, 3,240,039 options have not been allocated by the Supervisory Board and the Management Board.

(1) Details on stock options granted in the last ten years are provided on page 104.

## Note N - Pensions and other benefits

### A) Pension plans

Air Liquide provides its employees with various pension plans, termination indemnities, jubilees and other post-employment benefits for both active employees and retirees. These plans vary according to laws and regulations applicable in each country as well as specific rules in each subsidiary.

Defined benefit plans are in most cases financed via external pension funding. Assets are invested mostly in bonds or equities.

The Group pension liabilities with respect to defined benefit plans are based on an actuarial valuation of vested and potential future rights for actives and retirees at fiscal year end date, less the market value of assets, taking into account actuarial gains and losses.

Some employees are covered by defined contribution plans. However, these plans do not create any long-term liability. The Company's sole obligation is to pay regular contributions to an external fund based on a fixed percentage of the employees' pay. The pension expense is equal to the contribution amount paid during the fiscal year.

The characteristics of the plans in force in the Group are as follows:

– In France, mandatory collective agreements provide for termination indemnities (i.e. lump sums paid at retirement which are based on the employee's service and earnings at retirement). In addition, L'Air Liquide S.A. and some French subsidiaries have a group agreement providing:

- Additional benefits to retirees (5,034 people as of December 31, 2004) and to employees over 45, or with more than 20 years of service as of January 1, 1996 (1,047 people as of December 31, 2004). These benefits provide a retirement income based on final pay, which is paid in addition to the other normal retirement benefits (Social Security, ARRCO and AGIRC). This plan was closed as of February 1, 1996. The annual amount paid with respect to this plan cannot exceed 12% of payroll or 12% of pre-tax profit for the relevant entities. As a consequence of the plan closing, this 12% will be reduced starting in year 2010 based on the annual decrease in the number of retirees. As a consequence of these limits, this plan is viewed as a defined contribution plan for which the pension expense consists of annual payments as they are made to current retirees since these liabilities cannot be viewed as ongoing and stable. The contribution for the current fiscal year is equal to 36.1 million euros (for 2003 and 2002: 34.6 and 34.0 million euros respectively). Without the limits and until complete extinction of the plan, the actuarial value of the annual after-tax contributions paid on behalf of retirees as of December 31, 2004, and of eligible employees is equal to 402.7 million euros (300.8 million euros for retirees and 101.9 million euros for active employees).

- An externally funded defined contribution plan for other employees not in the plan mentioned above (4,347 people as of December 31, 2004) with at least one year of service. Contributions to this plan are jointly paid by employer and employee. For fiscal year 2004, employer contributions amount 6.2 million euros (2003 and 2002: 5.5 and 5.0 million euros respectively).

The other main pension plans are defined benefit plans in North America (United States and Canada, 36% of consolidated retirement liabilities), in Germany (22% of liabilities), in Switzerland (10% of liabilities), in Spain (8% of liabilities) and in Japan (7% of liabilities).

## B) Determination of assumptions and actuarial methods

Benefits are regularly valued by actuaries. These valuations are performed according to the International Accounting Standard. The actuarial method used is the projected unit credit method taking into account final pay.

Actuarial gains and losses above 10% of the greater of liabilities or assets are amortized over the Employees Average Remaining Service Lifetime (EARSLS).

The actuarial assumptions (turnover, mortality, retirement age, salary increase) vary according to demographic and economic conditions in each country.

The discount rates used to determine the liability are based on Government bonds or High-quality Corporate bonds with the same duration as the liabilities at the valuation date.

The expected return on long-term assets is determined by taking into account, in each country, the asset allocation in the portfolio.

## C) Liabilities and assumptions

As of December 31, 2003, liabilities with respect to all existing plans, and all subsidiaries, were included in the consolidation, except for non-material ones.

The liabilities for pension plans and similar benefits are shown below:

*In millions of euros*

	Liabilities	Assets	Book reserve	Unrecognized gains and losses
As of 12/31/2003	930	545	258	(127)
As of 12/31/2004	1,243	637	471	(135)

The unrecognized gains and losses as of December 31, 2004, will change in the future depending on future asset values and the actuarial assumptions.

**Change in actuarial liabilities (in millions of euros):**

Liabilities as of 12/31/2003	930
Service cost + interest cost - benefit payments	44
Change in actuarial assumptions	42
Change in perimeter (acquisitions, changes in plans' definitions)	266
Currency exchange	(39)
Liabilities as of 12/31/2004	1,243

**Change in assets (in millions of euros):**

Assets as of 12/31/2003	545
Return + contributions - benefit payments	48
Change in perimeter (acquisitions, changes in plans' definitions)	66
Currency exchange	(22)
Assets as of 12/31/2004	637

The different discount rates used are the following:

	Discount rate	
	2003	2004
Germany	5.00%	4.75%
Canada	6.25%	6.00%
United States	6.00%	6.00%
France	5.00%	4.75%
Italy	5.00%	4.75%
Japan	1.70%	1.70%

The benefit expenses for defined benefit plans and defined contributions plans for fiscal years 2003 and 2004 are as follows:

*In millions of euros*

	2003	2004
Defined contributions plans	59.1	57.2
Defined benefit plans	39.2	51.2

**Analysis of the benefit expense for year 2004 for defined benefit plans:**

*In millions of euros*

Service cost	31.3
Interest cost (net of asset return)	19.6
Other (including actuarial gains and losses amortization)	0.3

# Main consolidated companies, employees and currency rates

L'Air Liquide S.A. assumes a part of the Group's operating activities in France. It also owns directly or indirectly financial investments in its subsidiaries. L'Air Liquide S.A. mainly receives, from its subsidiaries, dividends and royalties.

L'Air Liquide S.A. assumes treasury centralization for some French subsidiaries.

## 1 - Main changes occurred in 2004

The change in consolidation perimeter in 2004, compared with 2003, is positive: +8.1% increase in sales, or 682 million euros at constant exchange rate.

This impact is principally linked with the acquisition of Messer (+5,6%) in May, 2004.

The consolidation by the proportional method of SOXAL (Singapore Oxygen Air Liquide Pte Ltd), HKOAL (Hong Kong Oxygen and Acetylen Cy Ltd), and EIG (Eastern Industrial Gases) (+1,3%), and the acquisition of Livingston (+0.4%), explain the remaining impact.

**A) Acquisitions:****Companies fully consolidated:****Messer companies:**

- Air Liquide Deutschland GmbH and its subsidiaries (Germany)	}	470.7
- ALIG Acquisition LLC (United States)		
- Air Liquide UK Limited (United Kingdom)		

**Metrology business Livingston:**

- Trescal Gestion (France) and its subsidiaries (TIS-Livingston S.A., Climats S.A., Sapratin Technologies S.A., Somelec S.A.)	}	36.8
- Livingston Calibration B.V. (The Netherlands)		
- Livingston Electronic Equipment Services S.A. (Spain)		
- Livingston Calibration GmbH (Germany)		

**Others:**

- Unident (Switzerland) acquired by Anios	1.9
- MG Tarature Srl acquired by Air Liquide Italia Srl (Italy)	3.2
- Arcana acquired by Schülke & Mayr GmbH (Germany)	0.6
- Arepa Mätteknik A.B. acquired by Air Liquide Gas A.B. (Sweden) and Arepa Test & Kalibrering A.S. by Air Liquide Danmark A.S. (Denmark)	3.0
- Allertec S.A. acquired by Air Liquide Hellas (Greece)	1.9
- I.T.M. S.A. acquired by Air Liquide España S.A. (Spain)	1.7
- Sudac Air Services Midi-Pyrénées and Air Solution acquired by Sudac Air Services (France)	1.1
- Others	34.6

**B) Change in consolidation method:****France**

- ETSA (change from the equity method to full consolidation method)	15.2
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**Europe**

- Air Liquide Norway (change from the equity method to full consolidation method)	2.7
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**Asia-Pacific**

- Groupe Hong Kong Oxygen and Acetylene Cy Ltd (Hong Kong)	}	Companies consolidated by the proportional method since 2004 (consolidated by the equity method in 2003)	108.6
- Singapore Oxygen Air Liquide Pte Ltd (Singapore)			
- Eastern Industrial Gases Ltd (Thailand)			

<b>Total change in consolidation perimeter on 2004 sales</b>	<b>682.0</b>
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**C) Merger and others:****France**

- Sale of Soterkenos S.A. by Sudac Air Services (France)
- Sale of the welding business of SPAL (Portugal) to Air Liquide Welding S.A. (France)

**D) Companies created and newly fully consolidated in the perimeter:****France**

- Omasa France
- AL-RE

**Europe**

- Air Liquide S.A. Acquisition GmbH & Co. KG (Germany)
- Maasvlakte Energie B.V. (The Netherlands)

**Asia-Pacific**

- Air Liquide China Holding (China)
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**E) Main changes in the Group's interest:****Europe**

- Following the acquisition of minority interests by AL Innovation, the Group's interest in Metrotech is 100% in 2004 (compared with 64.9% at year-end 2003) in ATEST (compared with 95.63% at year-end 2003), in LSA (compared with 71.85% at year-end 2003) and in ASCAL (compared with 99.97% at year-end 2003).

- Following the acquisition of minority interests by AL Services, the Group's interest in Aria is 100% in 2004 (compared with 87.92% at year-end 2003) and in Logsysal (compared with 87.75% at year-end 2003).

- Following the acquisition of minority interests, the Group's interest in AL España is 99.88% in 2004 (compared with 99.83% in 2003).

**Asia-Pacific**

- Following the acquisition of minority interests, the Group's interest in AL Japan Ltd is 98.82% in 2004 (compared with 95.52% in 2003).



## 2 - Employees

The number of employees of the fully consolidated companies adds up to 35,900 people as of December 31, 2004, compared with 31,885 as of December 31, 2003.

The integration of new subsidiaries in the Group has had a positive impact of 4,000 employees.

## 3 - Currency rates

Main currency rates used:

### Average rates

Euros for one currency	2002	2003	2004
USD	1.06	0.88	0.80
CAD	0.68	0.63	0.62
Argentinean peso	0.35	0.30	0.27
JPY (1,000)	8.47	7.64	7.44

### Closing rates

Euros for one currency	2002	2003	2004
USD	0.95	0.79	0.73
CAD	0.60	0.62	0.61
Argentinean peso	0.28	0.27	0.25
JPY (1,000)	8.04	7.40	7.16

# Report of the statutory auditors on the consolidated financial statements

(Free translation of the French language original)

*This is a free translation into English of the statutory auditors' report issued in the French language and is provided solely for the convenience of English speaking readers. This report includes information specifically required by French law in all audit reports, whether qualified of not, and this is presented below the opinion on the consolidated financial statements. This information includes explanatory paragraphs discussing the auditors' assessments of certain significant accounting matters. These assessments were made for the purpose of issuing an opinion on the consolidated financial statements taken as a whole and not to provide separate assurance on individual account captions or on information taken outside of the consolidated financial statements. The report also includes information relating to the specific verification of information in the Group Management Report.*

*This report, together with the statutory auditors' report addressing financial and accounting information in the Report from the Chairman of the Supervisory Board on internal control, should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.*

To the shareholders,

In compliance with the assignment entrusted to us by your shareholders' meeting, we have audited the accompanying consolidated financial statements of Air Liquide for the year ended December 31, 2004.

The consolidated financial statements have been approved by the Management Board. Our role is to express an opinion on these financial statements based on our audit.

## **Opinion on the consolidated financial statements**

We conducted our audit in accordance with professional standards applicable in France; those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the consolidated financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall consolidated financial statements presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements give a true and fair view of the assets, liabilities, financial position and results of the consolidated group of companies in accordance with the accounting rules and principles applicable in France.

## **Justification of assessments**

In accordance with the requirements of Article L.225-235 of French Company Law (*Code de Commerce*) relating to the justification of our assessments, we bring to your attention the following matters:

■ The impact of the acquisition of certain Messer activities in Germany, the United Kingdom, and the United States is presented in the Note to the consolidated financial statements relating to this acquisition. We have reviewed the initial value of identifiable assets and liabilities, including intangible assets, resulting from this acquisition. We have verified that its treatment complies with consolidation rules.

■ Intangible assets and goodwill have been reviewed for impairment as described in the Note to the consolidated financial statements relating to the valuation methods. We have reviewed the application and the assumptions used for these impairment tests.

■ We have examined the methods and assumptions applied to record in the consolidated balance sheet the provisions for risks and charges amounting to 990 million euros and particularly the processes implemented by management to identify and assess these risks. We ensured that these provisions were in compliance with French accounting methods.

The assessments were thus made in the context of the performance of our audit of the consolidated financial statements taken as a whole and therefore contributed to the formation of our unqualified audit opinion expressed in the first part of this report.

## **Specific verification**

In accordance with professional standards applicable in France, we have also reviewed the information in the Group Management report.

We have no matters to report regarding its fair presentation and conformity with the consolidated financial statements.

Paris and Paris-La Défense, March 9, 2005

The statutory auditors

MAZARS & GUÉRARD

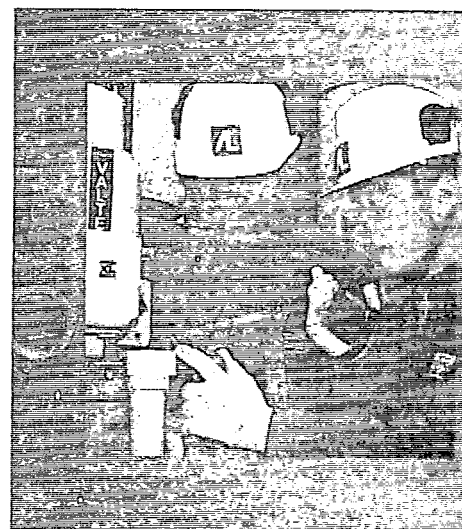
Frédéric ALLILAIRE

ERNST & YOUNG Audit

Jean-Claude LOMBERGET



# Report from the Chairman of the Supervisory Board



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# Report from the Chairman of the Supervisory Board

Conditions for the preparation and organization of the work of the Supervisory Board

The Company has adopted a structure based on a Management Board and a Supervisory Board.

## Composition of the Supervisory Board

As of December 31, 2004, the Supervisory Board comprised ten members, appointed at the General Shareholders' Meeting for a period of four years. Members are selected based on their skills, integrity, independence and their firm commitment to the interests of all shareholders.

In addition, all members have recognized experience and skills in one or more fields relevant to the Company's activities: international development, industry, health, marketing, research, economics, and finance. The experience, nationalities, and cultures represented in Air Liquide's Supervisory Board complement each other and are quite diverse.

The Supervisory Board uses certain indicators as criteria in assessing the independence of its members. An independent member must not:

- Be, nor ever have been, an employee or officer of the Company;
- Hold office as Chairman and Chief Executive Officer, Chief Executive Officer, Chairman or member of the Management Board of a company in which the Chairman of Air Liquide's Supervisory Board or a member of the Management Board is a director or a member of the Supervisory Board;
- Have a business relationship with the Air Liquide Group representing a significant part of the activity either of Air Liquide, or of the company in which the member of the Supervisory Board is an officer;
- Have any close family ties to a member of the Management Board.

On the basis of these criteria, the Supervisory Board determined that, as of December 31, 2004, the following members are independent: B. Majnoni d'Intignano, Sir Christopher Hogg, Sir Dennis Weatherstone, L. Owen-Jones, T. Desmarest, C. van Lede, G. de La Martinière and Professor R. Krebs. Thus, eight out of ten members of the Supervisory Board are independent.

## Role of the Supervisory Board – Relationship with the Management Board

The role of the Supervisory Board, as defined in law and in the Company's Articles of Association, is to continuously supervise the management of the Company exercised by the Management Board.

An internal document complementing the Articles of Association, has been approved by the Supervisory Board. It sets out the guiding principles directing the relationship between the Management Board and the Supervisory Board.

In particular, it describes how the following operate in practice:

- The Supervisory Board's right to information. Most of the information is supplied either (i) in quarterly reports in a format agreed upon with the Chairman of the Supervisory Board and presented by the Management Board; or (ii) in documents based on a standard list, containing the information the Supervisory Board needs to carry out its role;
- The Supervisory Board's right to monitor certain specific matters, in particular its review of the annual and half-yearly financial statements, the agenda for General Shareholders' Meetings, the Annual Report to the General Shareholders' Meeting, the report from the Internal Audit Department, and the Group's annual and strategic objectives;
- The Supervisory Board's own powers, for instance, to appoint members of the Management Board and its Chairman, to set their remuneration, to form committees, and to set Supervisory Board members' attendance fees;
- Setting thresholds, above which certain key decisions listed in Article 22 of the Articles of Association require prior authorization from the Supervisory Board:
  - sureties, warranties and guarantees above a unit amount of 80 million euros or for an annual combined amount above 250 million euros,
  - sales or contributions of equity interest, sales of branches of activity, mergers or partial business transfers, above a unit amount of 150 million euros or for an annual combined amount above 300 million euros,
  - arranging security above a unit amount of 80 million euros or for an annual combined amount above 150 million euros,
  - commitments for investment or acquisitions above a unit amount of 250 million euros or for an annual combined amount above 400 million euros,
  - financing operations involving sums that could substantially change the Group's financial structure,
  - granting stock options to employees or management,
  - issuing securities giving access to capital,
  - any transaction that could substantially change the Group's strategy,
  - the Company's purchase of its own shares.

## Operation of the Supervisory Board

In addition, internal regulations set guidelines for the Supervisory Board's composition aiming at balancing age, total duration of terms of office, and number of former Group officers. These internal regulations also prescribe the Supervisory Board's operating rules: conduct of meetings (number of meetings and participation by video-conference) and the formation of committees (purpose, rules of operation).

Furthermore, an internal code of conduct on the prevention of insider trading outlines the legal and regulatory obligations binding Supervisory Board members. This code of conduct also sets the limits for dealing in Company shares, by defining abstention periods during which members may not trade in those shares.

Members of the Supervisory Board declare their trades in Company shares to the Company. This information is then forwarded to the stock market authorities in compliance with current regulations.

Finally, under the Company's Articles of Association, each member of the Supervisory Board must hold at least 500 registered shares in the Company.

## Work of the Supervisory Board in 2004

In 2004, the Supervisory Board met six times, with an average attendance rate of 85.5%.

The Supervisory Board dealt with a variety of matters tied to the following three areas:

Regular supervision of the management of the Group, mainly carried out by:

- Attending the presentation of **quarterly reports** by the Management Board on the Group's activities and results; presentation of the annual objectives, and review of the consolidated and Company annual and half-yearly financial statements at the February and September meetings in the presence of the statutory auditors; in 2004, the Supervisory Board determined the frequency and typical content of reports to be made by the Management Board on its risk management policy;
- Reviewing **reports** from the four meetings of the **Audit and Accounts Committee**, and from the three meetings of the **Selection and Remuneration Committee**;
- Using the **prior authorization** procedure provided for in the Articles of Association, in particular for the investments necessary for industrial projects or external growth during the year; for the share buyback program; for regulated agreements; for the stock options scheme; for sureties; and for terms and conditions of Group financing;
- Reviewing **Company documents**: responding to applications from the Works Council, and reviewing the social report and forward-planning documents;

- Preparing for the annual **General Shareholders' Meeting** by reviewing the proposed Annual Report from the Management Board, proposed agenda, profit allocation and **proposed resolutions** for the General Shareholders' Meeting, and, finally, by preparing the Supervisory Board's report to that Meeting.

Monitoring of issues of significance to the Group in 2004, including:

- The acquisition of **Messer's** activities in Germany, the United Kingdom and the United States: in regular meetings, and at an exceptional one, the Supervisory Board was kept well informed of progress and it approved the various stages of this external development project according to the approval procedure provided for in Article 22 of the Articles of Association. The acquisition was completed in May, following the approval of the European Commission (in March) and the U.S. Federal Trade Commission (in April). The Supervisory Board was also regularly informed on the divestments required by the competition authorities. With their approval, such divestments were for the most part carried out in the Fall of 2004. The Supervisory Board was also updated on the status of the integration process:

- The Group's **strategic orientations**: the Management Board and several operating managers made presentations to the Supervisory Board on the main business lines, development drivers, and strategic goals identified in Asia, the Middle East, Europe, and America. A special meeting to address the Group's strategic goals took place in June, in addition to several presentations made at quarterly meetings;

- Finally, taking into account the work and recommendations of the Audit and Accounts Committee, the Supervisory Board followed the **selection** process for the position of **statutory auditors** and nominated the firms Ernst & Young and Mazars & Guérard to be put to the General Shareholders' Meeting in May.

Operation of the corporate structure

The Supervisory Board met without members of the Management Board, to consider:

- The **operation of the Management Board**; following the Messer acquisition, the Supervisory Board enlarged to three members the Management Board, by appointing Klaus Schmieder member of the Management Board in May. In November, the Supervisory Board renewed the terms of office of the Management Board's members and its Chairman, which were due to expire. The new three-year terms will expire on November 13, 2007 (subject to age limits set in the Articles of Association). Finally, based on the Selection and Remuneration Committee's recommendation, the Supervisory Board set the variable part of Management Board members' remuneration for the 2003 fiscal year, the fixed part and the principles that would apply to the variable part for 2004;

■ **The operation of the Supervisory Board;** at the General Shareholders' Meeting in May, the Supervisory Board put forward a motion to renew É. de Royere's term of office and nominated Professor R. Krebs for a seat on the Supervisory Board. It also renewed É. de Royere's membership and chairmanship of the Audit and Accounts Committee. This year again, the Supervisory Board conducted an assessment of its operation through individual assessment questionnaires filled out by Supervisory Board members. Responses were compiled in a summary report and provided the basis for action proposals later adopted by the Supervisory Board, notably with respect to its composition, that of its committees, its jurisdiction and training opportunities for its members. Finally, the Supervisory Board set the rules for determining its members' attendance fees for the year.

Several days prior to each of the Supervisory Board's meetings, a file of meeting documentation dealing with key items on the agenda is sent out to Supervisory Board members. Every meeting includes a detailed presentation by the Chairman and members of the Management Board on all agenda items. On specific issues, members of the Executive Committee may be asked to provide their input. In addition, the statutory auditors are involved in meetings where financial statements are reviewed. Presentations give rise to questions and discussions before resolutions are put to a vote. Detailed written minutes are sent to members for review and comments before being approved by the Supervisory Board at the next meeting.

## Committees

The Supervisory Board has formed two committees:

### The Audit and Accounts Committee

As of December 31, 2004, the Audit and Accounts Committee had four members: É. de Royere, Chairman at the Committee, Sir Christopher Hogg, G. de La Martinière and Sir Dennis Weatherstone. Of the four Committee members, three are independent. Committee members combine experience in business management with financial and accounting expertise.

**Composition and mission as defined in the Company's internal regulations**

- The Audit and Accounts Committee must include four or five members of the Supervisory Board and at least two-thirds of its members must be independent.
- The Committee obtains information jointly or, to compare different points of view, separately, from: the Management Board, the Finance, Administration and Legal departments, the Internal Audit Department, and the statutory auditors. Relying on its members' professional experience, the Committee forms a reasonable judgement on the

financial statements approved by the Management Board; on the accounting methods used; and on the existence and the operation of organizations and procedures of internal control making it possible to mitigate the risks incurred, and the way these methods and procedures are applied; the selection and renewal of the statutory auditors. The Committee reviews the selection procedure and gives advice on the choice of auditors and on the rotation of the signing partners; it reviews the nature of their work and the amount of their fees.

■ The Committee meets at least three times each year, and always before the Supervisory Board meetings at which the Management Board presents the annual or half-yearly financial statements. The Committee reports on its work both orally and in writing to the Supervisory Board.

■ The Committee can draw on external experts for assistance.

### The Committee's work in 2004

The Audit and Accounts Committee met four times, with an average attendance rate of 94.1%.

■ The Committee **reviewed the consolidated and Company's annual and half-yearly financial statements** and examined off-balance sheet items; taxation; non-recurring items; provisions; and the management of risk related to customers, countries and exchange. Moreover, the Committee focused its attention on the financing conditions of the Messer acquisition, as well as its impact on financial statements and the Group's debt level.

■ The Committee also heard the **conclusions of the statutory auditors on these financial statements**. It ensured that the Internal Audit Department's working methods allowed it to complete assignments appropriate to the Group's business.

■ In addition, the Committee received **specific presentations** on the following matters:

- Initial studies on the implementation of new IAS standards. This presentation updated the Committee on the main accounting changes flowing from the change in standards,
- Through several presentations, efforts were made to finalize the typical content of the Management Board reports to the Supervisory Board on the risk management policy. Several specific presentations focused on certain risk categories,
- The Committee was informed of the Group's insurance policy and its implementation by the various Group entities.

■ Finally, the Committee played an active part in the **selection of candidates for the position of statutory auditors** to be voted on during the General Shareholders' Meeting, and communicated its recommendation to the Supervisory Board.

■ Each session required a file of meeting documentation to be prepared and sent out several days beforehand, and was preceded by individual phone interviews with the Finance Director. During the session, each presentation was made either by the Finance Director, the Internal Audit Department, the management executive expert in the area under discussion or the statutory auditors, always in the presence of a member of the Management Board, and was followed by discussion. The statutory auditors also reported in the absence of the members of the Management Board. An oral, then a written report of each meeting was prepared for the Supervisory Board.

### **The Selection and Remuneration Committee**

As of December 31, 2004, the Selection and Remuneration Committee had three members: A. Joly, Chairman of the Committee, T. Desmarest and L. Owen-Jones. Of the three Committee members, two are independent.

#### **Purpose**

■ The Committee's purpose is to regularly review the development of the Supervisory Board, and to propose candidates for new Supervisory Board members to put to the General Shareholders Meeting. It also recommends to the Supervisory Board all the terms and conditions for the appointment and remuneration of Management Board members, as well as other conditions applicable to such members. These recommendations include the granting of stock options and pension plans. The Committee also periodically reviews the development and performance of Management Board members.

■ It reviews the remuneration policy determined by the Management Board for other members of the executive team, and the requests made by the Management Board to the Supervisory Board to authorize the granting of options. The remuneration policy for members of the executive team takes into account market practices. Options are granted in order to align managers' interest more closely with the medium and long-term interests of shareholders.

■ The Committee is also kept abreast of development plans concerning management teams.

#### **The Committee's work in 2004**

■ The Selection and Remuneration Committee met three times, with an attendance of 100%.

■ During 2004, the Committee reported its conclusions from earlier work on the composition of the Supervisory Board. As a result, it proposed Professor R. Krebs as candidate and the renewal of É. de Royere's mandate. Following the approval of the Supervisory Board, both were elected at the General Shareholders' Meeting in May, 2004.

At the end of 2004, the Committee examined again the composition of the Supervisory Board, in particular the terms of office to be renewed, bearing in mind the established principle of balancing age and diversity of experience, cultures and nationalities. As in previous years, an external firm assisted the Committee in its search for new members. Based on its conclusions, the Supervisory Board formulated proposals for new and renewed membership as explained in the Supervisory Board report. The Committee also considered the future needs of the Supervisory Board.

■ The Committee reviewed the amount of members' attendance fees received by Supervisory Board members, and the Supervisory Board formulated the principles for apportionment and the amounts that applied to the fiscal year 2004.

■ At its first meeting in 2004, the committee reviewed the performance of Management Board members and communicated its conclusions to the Supervisory Board.

The Committee was also informed of the Management Board's appraisal of the performance and potential for development of individual members of the Executive Committee.

■ The committee set the variable part of the remuneration for Management Board members for the fiscal year 2003, based on the change in results and on individual performance appraisals.

■ Upon review of all the terms and conditions in which Management Board members perform their duties (in particular, pensions and options previously granted) and the situation in the external marketplace, the Committee made proposals to the Supervisory Board for the fixed remuneration and the formulas for calculating the variable remuneration for Management Board members for fiscal year 2004.

■ Following the acquisition of Messer activities, the Committee recommended that Klaus Schmieder be appointed to the Management Board.

■ The Committee proposed that the Supervisory Board fully renew the term of office of the Management Board's members and its Chairman, which were due to expire.



# Internal control procedures instituted by the Company

The elements of the present report have been compiled by the Group's Internal Audit Department Director in conjunction with the Board Secretary, having been solicited by the Chairman of the Supervisory Board for this purpose.

These elements were presented to the Management Board who judged them compliant with existing Group measures.

They were also presented to the statutory auditors in order to allow them to establish their own report, as well as the Audit and Accounts Committee and the Supervisory Board.

## Objectives

Internal Control procedures are part of Group policies put together by the Company and that must be implemented by each entity according to each local situation. These Group policies rely on standards, charters, codes, rules, and may also include practices.

Group policies aim:

- To ensure that the activities and behavior of its members:
  - Comply with current laws and regulations, internal standards and applicable good practices;
  - Comply with the objectives defined by the Company, especially in terms of risk prevention and risk management policies.
- To verify that all financial information communicated either internally or externally gives a true and fair view of the situation and activity of the Group.

Internal Control procedures in and of themselves, as with other assurance procedures, can not provide an absolute guarantee that all risks have been fully eliminated.

Within this context, during 2004 the Group undertook efforts with an objective of obtaining continuous improvement of the quality of Internal Control, notably:

- Development of more thorough documentation related to the risk management process;
- Realignment of multiple policies related to the industrial safety of individuals, products and installations under an Industrial Management System (IMS), which has the objective of optimizing safety and reliability;
- Revision of certain existing procedures (Accounting Manual, Finance Guidelines, Information System Access Policy);
- Reinforced communication of audit reports and follow-up of action plans that rely on documented work programs and standardized presentation formats.

## Risk management

To ensure the continued development of its activities, the Group must actively pursue an approach to prevent and manage the risks (especially industrial and financial risks) to which it is exposed.

In terms of the Group's business activities, industrial risk management must essentially focus on prioritizing safety and security while maintaining permanent focus on the reliability of installations.

Financial risk management requires strict control over investments, combined with rigorous practices regarding the accounting and financial aspects of the activities.

Within this context, during 2004 the Group reinforced documentation related to risk management policy, which is supported by:

- A more complete identification of the different forms of risk encountered by the Company during the pursuit of business activity;
- The implementation of certain procedures and controls to better manage risks along with measures to mitigate potential financial impacts;
- The regular review of the policy by the Management Board. The Management Board, in turn, provides regular updates to the Supervisory Board.

## Control background

The control background is an important element in effective risk management.

■ It is primarily based on a highly consistent Group strategy, of which the main driving force is the internal growth of Company activities.

This strategy is relayed through management which centers on medium-term objectives that are categorized by business activity, as well as through a steering process based on annual budgetary objectives, which are further categorized down to the individual plan level.

■ The control background also depends on the strict control of Group investments, notably with:

- A centralized examination of the details of investment requests (beyond certain thresholds) and of the medium and long-term contractual commitments which may arise there from.
- Control of investment decisions practised through the use of specific follow up of the authorizations granted.
- A comparative analysis of the investments profitability (for the most significant) prior to, and subsequent to, their execution.

■ The control environment is strengthened by the independence of three key control bodies which report to the Management Board:

- The **Strategic Objectives and Management Control Department** monitors objectives on the basis of management control consistent with accounting reporting;
- The **Finance and Accounting Department** ensures:
  - the reliability of accounting and financial information;
  - Group financial risk management.
- The **Internal Audit Department** verifies the effective application of internal control procedures in the framework of audits carried out according to a defined program that is presented to the Group's Audit and Accounts Committee. This program is developed based on risk analysis and is regularly followed up on by the Audit and Accounts Committee itself.

The Internal Audit Department largely relies on specific standards and processes that were redefined and harmonized in 2004 in order to improve the effectiveness and visibility of audits performed.

Audit reports are widely distributed (up to the level of the Management Board) and systematically complemented by corrective action plans.

The audit reports, as well as subsequent follow-up reports, are the object of various direct communications and discussions between the Internal Audit Department and the Company's statutory auditors. Subsequent audits are conducted to verify the effective application of these action plans.

The reports and action plans are also communicated to and discussed with the statutory auditors.

■ Finally, the control environment is completed by a framework of defined limits of authorizations and delegations:

- From the Management Board to members of the Executive Committee and certain central department executives, in order to define their power related to issuing commitments and payments for commercial operations (sales or purchases);
- From the Management Board to certain executives in charge of industrial sites, in order to ensure the prevention and control of industrial risks for the sites under their responsibility;
- From the Management Board to certain financial executives, in order to ensure the security of transactions and financial flows.

The managers of various Group subsidiaries exercise their duties under the control of the Management Board while maintaining a respect for local rules and regulations.

They make sure that the policies and practices instituted are consistent with Group objectives, while being in accordance with the specific requirements of local law.

## Internal control procedures

Procedures have been established and communicated by the Company to ensure that primary risks are addressed by the various entities in accordance with Group objectives.

The main procedures aim:

■ **To ensure the safety and security of employees, products, installations, as well as the reliability of operations with a respect for the rules and regulations for accident prevention.**

In order to achieve this, in 2004 the Company realigned the multiple Group policies related to safety and risk management.

A new Industrial Management System (IMS), which is designed to reinforce the overall process of safety and risk management was defined, formalized and distributed to all Group entities.

The IMS was tested within certain pilot countries during 2004 (Canada, Italy, China) and will be deployed in all of the Group's entities in 2005.

The IMS is based on:

■ Empowerment of the entities Executive Management for the effective implementation of this system.

■ The issue of key management and organizational procedures that aim to ensure the approach towards:

- Industrial regulatory compliance;
- Design validation;
- Risk Management;
- Occupational Health, Safety and Environment;
- Technical training and certification of personnel;
- Implementation of Group operating and maintenance procedures;
- Procurement and Contract Services;
- Management of Change;
- Proactive analysis and treatment of both incidents and accidents;
- Management reviews and Industrial Audits.

The Safety and Risk Management Department (DMRS) supervises and controls the effective implementation of IMS, by notably relying on:

- Continually increasing team awareness by providing specifically related training, and the distribution of a monthly security report available to all employees on the Group Intranet;
- A monthly presentation of indicators related to Safety and security performance that is based on the reporting of accidents or near accidents. This reporting enables progress to be measured in achieving the Group objective of "zero accidents";
- Audits carried out in conjunction with the Industrial Departments to ensure the effective implementation of the system and the compliance of operations with Group security rules.

■ **To ensure that laws, regulations and internal management rules are respected within the Group, notably in the legal and Intellectual Property areas:**

In conducting their activities, the various Group entities rely on the charters, guidelines or reference frameworks issued by the major functional departments of the Company, notably:

- For the legal area:
  - Various contractual guides, notably for Large Industries;
  - Instructions on how to behave in terms of respecting laws relating to the competitive marketplace (primarily in Europe and the United States);
  - A "Group" note specifying the rules to be respected in order to prevent insider trading;
- For the intellectual property area:
  - Procedures aiming on the one hand to ensure respect by Air Liquide for valid patents held by third parties notably in the field of cryogenic production, and on the other hand to provide protection for the Group's own intellectual property;
  - A policy for the protection of Group inventions based on their identification (on a declaratory basis) and favoring the recognition of their inventors.

■ **To manage and minimize financial risk:**

The Company has a defined financial policy that is the subject of regular reviews. This policy, which is widely distributed to the Group entities, states the principles and procedures for the management of financial risk to which the activity is exposed, notably in relation to:

- **Liquidity risks:** the Company has defined rules aimed at ensuring an appropriate level of commitment and diversification (cash and maturities) for all sources of financing at Group level;
- **Counterparty risk:** the Company has defined rules aimed at ensuring that there is sufficient diversification and financial solidity of counterparties at Group level (commitment limits/minimum rating);

- **Exchange and interest rate risks:** the Company has defined methods, managed on a centralized basis for the hedging of interest rates related to debt that is carried in major currencies (principally, Euro, USD, JPY) with:

- A selection of authorized tools;
- The steps involved in the hedging decision process;
- The methods for the execution of transactions;

For other foreign currency debts, rules have been defined in order to ensure that the decentralized transactions being initiated to cover exchange risks are coherent with the Group objectives. The Company has also defined methods for exchange risk hedging in terms of the choice of tools, the decision process and the execution of transactions.

These measures are completed by treasury management rules that are aimed at ensuring secure transactions, adapted to local circumstances and compliant with the regulations in force.

The application of this financial policy is controlled by the Finance and Accounting Department. To this end, certain transactions are executed on a centralized basis (management of debt and interest rates), which is completed by consolidated reports supplied by various Group entities on a monthly or quarterly basis, depending on their debt level. The Finance and Accounting Department answers to the Finance Committee regarding the effective execution of the policy and submits future transactions to the Committee for approval. The Finance Committee regularly reviews the rules governing the financial policy applicable within the Group.

■ **To ensure the reliability of financial and accounting information:**

In order to ensure the quality and reliability of financial and accounting information produced, the Group primarily relies on a defined framework of accounting principles and standards as well as a dual reporting system that has both management and accounting inputs with data being systematically compared by independent but inter-active departments.

- In response to new accounting standards defined within IFRS, the Company undertook significant efforts to:

- Analyse and evaluate, in liaison with its statutory auditors, the impact for the Group of the new standards as of January 1, 2004;
- Inform and assist the different Group entities to prepare for implementing the new standards;
- Revise the Accounting Manual, which defines the accounting rules and principles as well as the consolidation methods applicable within the Group;

The manual, distributed to all of the Group's entities, also states the formats applicable within the Group for reporting financial and accounting information.

- Management Control reporting and the accounting reporting are each under the responsibility of independent but interactive departments, that are following identical methods and principles.

- This independence allows for the enhancement of information and analysis through the use of complementary indicators and data.

- The fact that these bodies are interactive provides for better control concerning the reliability of information thanks to a systematic process of regularly validating data.

Their consolidation is ensured by the Central Finance and Accounting Department.

This primarily includes the following:

- **Monthly management reporting, so called "monthly flash reporting"**. It provides elements related to sales and the main financial indicators: Statement of earnings, funds from operations (cash flow), net indebtedness and amount of investments authorized and engaged.

- **Quarterly reporting so called "Management Control reporting"**. It provides details of the primary elements of the Statement of earnings, balance sheet and Statement of changes in financial position.

These two documents are compiled by each entity according to a predefined timetable.

They are systematically accompanied by comments on activities drawn up by the director and the controller within the entity, and are consolidated at Group level with details for each business activity.

- **Quarterly reporting for accounting consolidation** is carried out by each subsidiary which, in addition, must provide (on a semi-annual basis) information on off-balance sheet commitments that may include:

- energy purchases,
- pension commitments,
- financial instruments,
- financial guarantees and deposits,
- all other contractual commitments.

Accounting consolidation and monthly reporting is sent to the Central Consolidation Department whose duty, in conjunction with the Strategic Objectives and Management Control Department, is, on one hand to analyse and comment on the results, and on the other hand, to identify and explain the differences with the projections that were made.

Through regular controls, the Finance and Accounting Department ensures the effective application of accounting methods and principles for the various Group entities.

It also relies on the audits carried out by the Internal Audit Department with which it has regular contact.

The reliability of financial and accounting information also depends on information systems which are becoming increasingly integrated (such as ERP),

Statutory auditors through their work ensure that reported financial information complies with the rules defined

## Control bodies

The Supervisory Board exercises its control over Group management through various reports it receives from the Management Board, relying on work done by the Audit and Accounts Committee, according to the methods and principles described above (reports, debriefings, etc).

The Management Board ensures risk management, notably through the existing reportings and through the following:

- Executive Committee meetings, with debriefings from the Safety and Risk Management Department (DMRS) regarding Group performance in terms of security and the progress of actions underway.

- Investment and Operations Committee meetings that it oversees;

- Work done by the Finance and Accounting Departments, the Strategic Objectives and Management Control Department, the Internal Audit Department which report directly to the Management Board;

- Finance Committee meetings that determine the Group's financial policy;

Control schemes are enhanced by the involvement of entity departments, the Executive Committee in terms of implementing and following-up actions needed to improve and strengthen the quality of internal controls.

### The Finance Committee

The Committee meets three times a year and upon request if need be.

This Committee includes the Group Finance and Accounting Director, the Corporate Finance and Treasury Director of the Group and certain Department members, which meet under the authority of a member of the Management Board.

The purpose of this Committee is to control the effective application of Group financial policy, to approve proposals and suggestions that have been submitted and to approve the rules governing Group financial policy.

### The Investment and Operations Committee

The Committee meets four to six times a year for each geographical area, or for each significant activity.

This Committee includes the Group Finance and Accounting Director, the Market Director, the Directors for the zone and the entity concerned by the request for investments, under the authority of a member of the Management Board.

The purpose of this Committee is to assess and approve requests for investments that have been submitted, as well as medium and long-term contractual commitments that may arise there from.

# Statutory auditors' report on the Report from the Chairman of the Supervisory Board on internal control procedures

Year ended December 31, 2004 (Free translation of a French language original)

*This is a free translation into English of a report issued in the French language and is provided solely for the convenience of English speaking readers. This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.*

To the shareholders of L'Air Liquide S.A.

In our capacity as Statutory Auditors of L'Air Liquide S.A., and in accordance with article L.225-235 of the French Company Law (*Code de Commerce*), we report to you on the Report prepared by the Chairman of the Supervisory Board of your Company in accordance with article L.225-68 of the French Company Law (*Code de Commerce*) for the year ended December 31, 2004.

Under the responsibility of the Supervisory Board, it is for management to determine and implement appropriate and effective internal control procedures. It is for the President to give an account, in his report, notably of the conditions in which the duties of the Supervisory Board are prepared and organized and the internal control procedures in place within the Company.

It is our responsibility to report to you our observations on the information set out in the Chairman's report on the internal control procedures relating to the preparation and processing of financial and accounting information.

We performed our procedures in accordance with professional guidelines applicable in France. These require us to perform procedures to assess the fairness of the information set out in the Chairman's report on the internal control procedures relating to the preparation and processing of financial and accounting information. These procedures notably consisted of:

- obtaining an understanding of the objectives and general organization of internal control, as well as the internal control procedures relating to the preparation and processing of financial and accounting information, as set out in the Chairman's report;
- obtaining an understanding of the work performed to support the information given in the report.

On the basis of these procedures, we have no matters to report in connection with the information given on the internal control procedures relating to the preparation and processing of financial and accounting information, contained in the Chairman of the Supervisory Board's report, prepared in accordance with article L.225-68 of the French Company Law (*Code de Commerce*).

La Défense, March 9, 2005

The statutory auditors

MAZARS & GUÉRARD

Frédéric ALLILAIRE

ERNST & YOUNG Audit

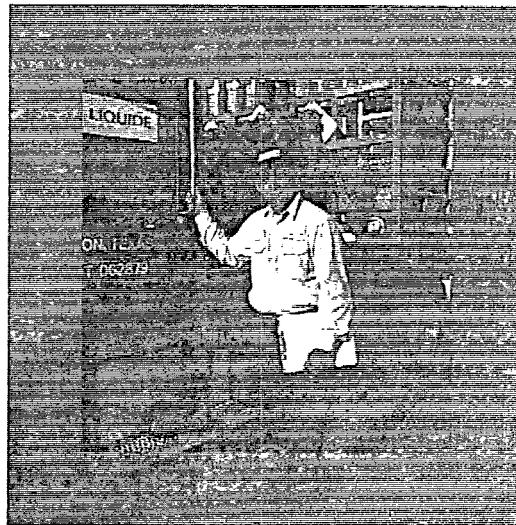
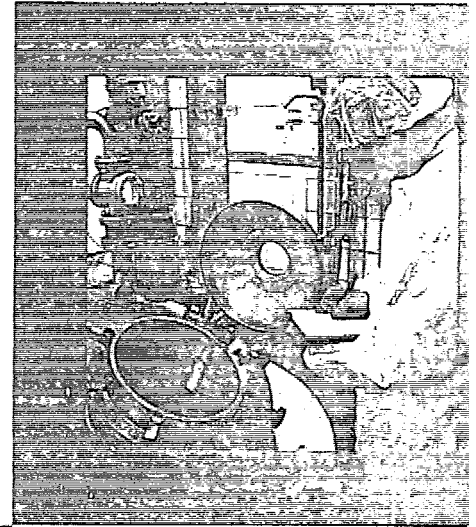
Jean-Claude LOMBERGET

# Sustainable development

- Summary of indicators
- Objectives

The principles of sustainable development have been at the heart of Air Liquide's corporate strategy for over a century. Sustainable development of Air Liquide includes four dimensions: responsibility to shareholders, long-term business development and Company performance coupled with transparency. Safety for people and assets, preservation of the environment and of natural resources, both in Group operations and at customer sites. Social and ethical commitment of Company employees to common objectives. Innovation and technological progress to guarantee the advancement of the Company and its customers.

Benoît Potier - Chairman of the Management Board



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## Methodology for reporting human resources, safety and environmental indicators

### Protocol and definitions

In the absence of a relevant and recognized benchmark for industrial gas activities, Air Liquide has produced a protocol to define its reporting methods for human resources, safety and environmental indicators.

This protocol includes in a single document all the definitions, measurement procedures and methods for collecting this information.

In line with the Group's commitment to continuous improvement, Air Liquide is constantly making adjustments to its sustainable development indicators protocol to reflect changes in the Group. This protocol is based on the general principles defined by the Group with regard to perimeter, responsibilities, controls and limits, and establishes definitions, responsibilities, tools and data-tracing methods for each indicator. This document is regularly updated.

### Perimeter and consolidation methods

Unless highlighted, the acquired Messer activities have not been integrated into the consolidation perimeter for human resources, security and environmental indicators for 2004. They will, however, be fully integrated in 2005.

As a general rule, production units or entities are integrated after one calendar year's full operation.

Human resources indicators are consolidated worldwide for all companies globally integrated within the financial consolidation perimeter.

Safety indicators are consolidated worldwide for all companies in which Air Liquide owns the majority of the share capital.

Information on kilometers traveled by delivery vehicles covers the world. Figures are calculated on the basis of data collected in the top 24 countries where the Group is established. Information on kilometers saved through on-site air gas production units is worldwide and involves all countries globally integrated within the financial consolidation perimeter.

Environmental and energy indicators for the seven main types of production units operated by the Group are consolidated for the first year based on a world perimeter that includes the main countries in which the Group is established (Austria, Belgium, Bulgaria, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Luxembourg, the Netherlands, Poland, Portugal, Spain, Sweden, Switzerland, Canada, the United States, Argentina, Brazil, Chile, South Africa, Botswana, Egypt, Morocco, Tunisia, China, South Korea, India, Indonesia, Japan, the Philippines, Singapore, Taiwan, Thailand, Australia, and New Zealand). This perimeter, which accounts for about 99% of the Group's sales in Gas and Services, and 89% of the Group's total sales (excluding Messer), has been expanded from 2003. Only Europe and North America were included in the consolidation perimeter in 2003.

Data on units whose operating permit has been granted to a company in which Air Liquide has a majority interest are fully consolidated (100%). Data on units operated by a company in which Air Liquide has a 50% interest are consolidated at 50%. Data on units whose operating permit has been granted to a company in which Air Liquide has a minority interest have not been taken into account. The various types of production units are:

- main air separation units;
- co-generation units, and hydrogen and carbon monoxide production units;
- acetylene, nitrous oxide, carbon dioxide units, as well as hygiene and specialty products units.

Estimates of the Group's sales percentage covered by ISO 9001 quality or ISO 14001 environmental certifications are based on the companies included within the financial consolidation perimeter.

Energy consumption of on-site units, as well as water consumption specific to the sale of treated water at the Bayport site (United States), are excluded from the data consolidation perimeter.

Certain sites including several activities may report data on only one of those activities.

## Reporting and responsibility

Human resources, safety and environmental indicators are produced by several data collection systems in the Group, each under the responsibility of a specific department:

- human resources indicators included in the Group's general accounting consolidation tool, are under the dual responsibility of the Finance Department and the Human Resources Department;

- safety indicators are based on the Group's accident reporting tool, which falls under the Safety and Risk Management Department (DMRS);

- the energy indicators for the main air separation units, co-generation, hydrogen and carbon monoxide units, are tracked by the Large Industries division using a dedicated Intranet tool. This data also enables the Large Industries division to calculate carbon dioxide emissions from the co-generation and hydrogen and carbon monoxide units, as well as carbon dioxide emissions avoided through use of co-generation;

- Complementarily, the collection of environmental data is carried out by the Safety and Risk Management Department (DMRS) using a dedicated Intranet tool, and includes:

- for the units mentioned above, other environmental indicators (atmospheric emissions, water consumption, discharge to water, etc.);

- for the smaller units (acetylene, nitrous oxide, carbon dioxide units, and hygiene and specialty products units), all indicators (energy use, atmospheric emissions, water consumption, discharge to water, etc.).

- Indicators on kilometers (traveled and saved) are the responsibility of the Industrial Customers division. Kilometers saved are calculated from sales accounting data for gas produced by on-site units.

- Finally, the estimation of the Group's sales percentage covered by the ISO 9001 quality and ISO 14001 environmental certifications are indicators under the responsibility of the Industrial System Department.

## Controls

Each department in charge of collecting data is responsible for indicators provided. Control occurs at the time of consolidation (review of changes, inter-site comparisons). Safety and energy indicators are included in operational audits of business activities.

In addition, in the process of collecting data in the expanded perimeter, the Safety and Risk Management Department (DMRS) conducted internal audits of environmental data on a sample of sites representative of the various types of units monitored.

Where the data reported makes no sense or is missing, an estimated value may be used by default.

For the second year, and in the spirit of continuous improvement, Air Liquide has asked the Environment and Sustainable Development Department of its statutory auditors, Ernst & Young and Mazars & Guérard, to review the Group's procedures for human resources (excluding employee shareholders), safety and environmental indicators, and to check certain sites or entities on the process of data collection. The review and its findings are presented below. This review process has also given rise to recommendations, communicated within the Group, in order to improve performance in the following year.

## Methodological limitations

Methodologies for reporting on certain human resources, safety, and environmental indicators may present certain limitations, given:

- the absence of recognized definitions at the national or international levels, in particular those indicators concerning engineers and managers;

- the representative character of measurements and the necessary estimates involved. This is particularly relevant for indicators on carbon dioxide emissions avoided, water consumption, kilometers saved by on-site units and the percentage of sales covered by quality or environmental certifications, and indicators regarding training.



# External opinion on human resources, safety and environmental reporting procedures

At the request of Air Liquide, we reviewed reporting procedures of human resources<sup>(1)</sup>, safety and environmental indicators published for the 2004 reporting period and presented in the synthesis of indicators in the following pages.

These indicators were prepared under the responsibility of Air Liquide's executive management, according to the Group's procedures summarized in the previous pages. It is our responsibility to provide you our findings following the review described below.

## **Nature and scope of review**

As agreed, we carried out the following tasks:

- we reviewed the procedures and their relevance, their completeness and precision with regard to the Group's activities;
- we conducted interviews at headquarters with the departments in charge of the various reporting systems (human resources, finance, risk and safety management, Large Industries, Industrial Customers) to complete our understanding of these procedures and test their implementation;
- we visited six entities to assess the implementation of procedures: the Gaz Industriels Services department, the VitalAire subsidiary, the Claude-Delorme Research Center in France, for human resources

data; and the air gases production unit in Antwerp, Belgium, as well as the cogeneration and hydrogen production units in Rozenburg, Netherlands, for safety and environmental data;

For this review, we referred to on our teams specialized in sustainable development.

In accordance with ISAE international audit standards (International Standard on Assurance Engagements), such a review does not include all the relevant controls for providing assurance on data, but it does allow us to describe findings on reporting procedures.

## **Findings on procedures**

Based on our review, the findings on procedures are consistent with Air Liquide's methodology overview in the previous pages, in particular with regard to methodology limitations.

Compared with the previous fiscal year, formalization of data-collection procedures has improved. Within the continuous improvement process, internal control of these procedures could be strengthened.

In Paris, March 9, 2005

Éric Duvaud  
Ernst & Young

Philippe Moutenet  
Mazars

(1) Excluding share capital held by Group employees.



# Shareholders

## Growth of net earnings and net earnings per share

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Net earnings (in millions of euros)	406	423	471	516	563	652	702	703	726	778
Net earnings per share (in euros) (1)	3.63	3.74	4.17	4.56	5.00	5.81	6.34	6.42	6.68	7.20

(1) Based on the average annual number of shares (excluding treasury shares) and adjusted to account for increases in capital and share subscriptions.

## Growth in overall distribution to shareholders

Fiscal year	Overall distribution in euros
1995	143,627,763
1996	160,123,309
1997	179,476,216
1998	205,141,753
1999	221,705,489
2000	281,772,221
2001	298,089,761
2002	330,455,564
2003	327,486,475
2004	<b>391,189,742</b>

## Evolution of registered capital and number of shares with bonus dividend since implementation in 1995

Fiscal year	Registered capital (in %)	Number of shares with bonus dividend
1995	40%	10,162,287
1996	43%	19,063,625
1997	38%	23,110,575
1998	35%	25,539,055
1999	32%	24,087,590
2000	30%	24,944,295
2001	29%	23,315,671
2002	27%	24,489,228
2003	28%	24,266,063
2004	<b>30%</b>	<b>25,876,746</b>

## Evolution of share ownership

	1990	1995	2000	2001	2002	2003	2004
Individual shareholders	65	57	45.4	41.7	39.9	40.5	<b>38.9</b>
Institutional investors	35	43	52.9	55.6	58.4	57.6	<b>59.8</b>
Treasury shares	-	-	1.7	2.7	1.7	1.9	<b>1.3</b>

### Objective

In the last ten years, the growth in value of a portfolio of Air Liquide shares (Total Shareholder Return) has been +11.4% a year, including reinvested dividend, bonus shares and loyalty bonuses granted to registered shareholders. Our goal is to follow this long-term and transparent policy of comprehensive remuneration for shareholders in order to ensure regular growth in the value of their investment.

# Safety and the environment

## Safety indicators for Group as a whole

Safety	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Number of accidents	361	359	234	179	192	214	188	207	164	135	134	167	194	136	<b>135</b>
Accident frequency rate (1)	6.5	6.4	4.3	3.4	3.8	4.2	3.4	3.7	2.9	2.4	2.3	2.8	3.2	2.3	<b>2.3</b>

(1) Number of accidents involving lost time per million hours worked by Group employees. Accidents defined as recommended by the International Labour Office.

### Objective

Our objective is zero accident, in every site, in every region, in every entity.

## Environmental indicators for the Group as a whole

Presented here are the environmental elements most typical of the seven types of production units which characterize the Group's activities:

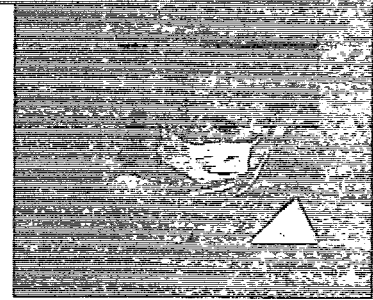
- large air separation, cogeneration, and hydrogen and carbon monoxide units,
- acetylene, nitrous oxide and carbon dioxide liquefaction units,
- production units in the hygiene and specialty activities

### Most relevant environmental indicators for the total of the seven unit types included in the World perimeter

	Perimeter	2003	2004
Total annual electricity consumption (GWh)	World		<b>17,740</b>
Total annual thermal energy consumption (LHV Terajoules)	World		<b>124,702</b>
Total annual water consumption (in millions of m <sup>3</sup> )	World		<sup>(2)</sup> <b>44</b>
Annual amount of CO <sub>2</sub> emissions avoided by cogeneration (in thousands of tons)	World	856	<b>647</b>
Total CO <sub>2</sub> emissions into the atmosphere (in thousands of tons/year)	World		<sup>(3)</sup> <b>5,795</b>

(2) Representing less than 0.5 one-thousandths of the industrial water consumption of the countries under review.

(3) Representing less than 1 one-thousandths of the CO<sub>2</sub> emissions in the countries under review.



### Details on indicators for each of the seven unit types

Worldwide, Air Liquide operates 208 large air separation units. They produce oxygen, nitrogen and argon, with some sites producing rare gases. Since they do not use combustion processes, these units do not produce carbon dioxide (CO<sub>2</sub>), sulfur oxide (SO<sub>x</sub>) or nitrous oxide (NO<sub>x</sub>) emissions, and are thus particularly environmentally friendly. They do consume large quantities of electricity, and their cooling systems require back-up water.

Air separation units	Perimeter	2000	2001	2002	2003	2004
Annual electricity consumption (GWh) <sup>(1)</sup>	World	14,940	15,421	15,903	16,134 <sup>(2)</sup>	<b>16,931</b>
Evolution of energy consumption per m <sup>3</sup> of gas produced <sup>(3)</sup>		100.0	96.6	94.8	93.9	<b>93.1</b>
Annual back-up water consumption (in millions of m <sup>3</sup> )	World					<b>28</b>
Discharge to water: oxidizable matter (tons/year)	World					<b>Below 2,000</b>
Discharge to water: suspended solids (tons/year)	World					<b>Below 2,000</b>

(1) Including small volumes of purchased steam. Figures between 2000 and 2003 have been restated based on the approach adopted for 2004.

(2) Corresponding to an electrical capacity of about 1,900 MW.

(3) Gases produced (oxygen, nitrogen, argon) calculated in m<sup>3</sup> of equivalent gaseous oxygen. Base 100 in 2000.

### Objective

To reduce, within five years, the Group's annual world consumption of electrical energy by air gases separation units, at constant perimeter, by at least 400 GWh, or the home annual consumption of electricity of a city of 180,000 people.



**2** Worldwide, Air Liquide operates 15 cogeneration units. They produce steam and electricity simultaneously much more efficiently than units that generate these two fluids separately, which results in major energy savings. They consume natural gas and water, most of which is converted to steam and then supplied to customers. Most of the steam is condensed by customers and then reused in the cogeneration unit. In most cases, the electricity produced is supplied to the local electricity distribution network. Combustion of natural gas gives off carbon dioxide (CO<sub>2</sub>) and produces some nitrous oxide (NO<sub>x</sub>), but practically no sulfur oxide (SO<sub>x</sub>) emissions. These units replace steam and electricity production units that would have produced more CO<sub>2</sub> emissions. Cogeneration units therefore help reduce CO<sub>2</sub> emissions in the industrial basins they supply.

Cogeneration units	Perimeter	2002	2003	2004
Annual natural gas consumption (or thermal energy) (LHV Terajoules)	World		71,464	74,065
Annual quantities of CO <sub>2</sub> atmospheric emissions prevented through cogeneration (1) (in thousand of tons)	World	740	856	647
Air emissions: CO <sub>2</sub> (carbon dioxide) (in thousands of tons/year)	World		3,930	4,155
Air emissions: NO <sub>x</sub> (nitrous oxides) (in tons/year)	World		4,050	2,060
Air emissions: SO <sub>x</sub> (sulfur oxides) (in tons/year)	World		Below 100	Below 100
Annual water consumption (million m <sup>3</sup> )	World		10	7.9

(1) Calculation takes into account the primary energy source each country uses to produce electricity (International Energy Agency).

**3** Worldwide, Air Liquide operates 30 large hydrogen and carbon monoxide production units. Desulfurization of hydrocarbons to produce fuels free of sulfur is one of the main applications for hydrogen. A top application for carbon monoxide is plastics manufacturing. Natural gas is the main raw material used in these production units, along with certain amounts of "process" water. These units produce carbon dioxide (CO<sub>2</sub>) and entail nitrous oxide (NO<sub>x</sub>) emissions but produce practically no sulfur oxides (SO<sub>x</sub>). They also consume electricity. Their cooling circuits require back-up water.

Hydrogen and carbon monoxide units	Perimeter	2004
Annual thermal energy consumption (LHV Terajoules)	World	50,366
Annual electricity consumption (GWh)	World	479
Air emissions: CO <sub>2</sub> (carbon dioxide) (in thousands of tons/year)	World	1,628
Air emissions: NO <sub>x</sub> (nitrous oxides) (in tons/year)	World	Below 1,000
Air emissions: SO <sub>x</sub> (sulfur oxides) (in tons/year)	World	Below 500
Annual consumption of process and back-up water (in million m <sup>3</sup> )	World	5
Discharge to water: oxidizable matters (in tons/year)	World	Below 50
Discharge to water: suspended solids (in tons/year)	World	Below 500

**44** Worldwide, Air Liquide operates 52 acetylene production units (a gas used mainly in metal welding and cutting). They produce the gas through the decomposition of a solid - calcium carbide - using water. This process produces lime, which is generally sold to industrial customers for use in water treatment plants. Other consumption and discharge is of little significance.

Acetylene units	Perimeter	2004
Annual water consumption (in million m <sup>3</sup> )	World	0.4
Annual calcium carbide consumption (in tons)	World	36,200
Quantity of lime produced (in tons/year)	World	41,900

**51** Worldwide, Air Liquide operates 11 nitrous oxide production units. Nitrous oxide is used nearly exclusively as an anesthetic gas in medicine. It is produced from ammonium nitrate in solid form or as a solution in water. The cooling circuits of these units require back-up water. Other consumption and discharge is of little significance.

Nitrous oxide units	Perimeter	2004
Annual electricity consumption (GWh)	World	6
Annual water consumption (million m <sup>3</sup> )	World	0.1
Annual ammonium nitrate consumption (in tons)	World	25,100
Estimate of loss of nitrous oxide into the atmosphere (in tons/year)	World	800

**61** Worldwide, Air Liquide operates 47 carbon dioxide liquefaction units. Carbon dioxide has many industrial applications but is used mainly in the food industry to deep-freeze foods or produce carbonated beverages. Carbon dioxide is most often a by-product of chemical units operated by other industrial companies. In some cases, it is found naturally in underground deposits. It is purified and liquefied in Air Liquide units, which consume electricity and cooling water in the process.

Carbon dioxide liquefaction units	Perimeter	2004
Annual electricity consumption (GWh)	World	306
Annual water consumption (million m <sup>3</sup> )	World	1.8
Discharge to water: oxidizable matters (in tons/year)	World	Below 100
Discharge to water: suspended solids (in tons/year)	World	Below 100

**7** Hygiene and specialty production units are located at seven sites in France, Belgium and Germany. These units consume natural gas, electricity and water. Combustion of natural gas produces small quantities of carbon dioxide.

Hygiene and specialty units	Perimeter	2003	2004
Annual electricity consumption (GWh)	World	17	18
Annual natural gas consumption (LHV Terajoules) (1)	World	217	271
Air emissions: CO <sub>2</sub> (carbon dioxide) (in thousands of tons/year)	World	13	12
Annual water consumption (in million m <sup>3</sup> )	World	1	0.6
Discharge to water: oxidizable matters (in tons/year)	World	Below 1,000	Below 1,000
Discharge to water: suspended solids (in tons/year)	World	Below 100	Below 100

(1) Including steam requirements.

### Transportation indicators

	Perimeter	2003	2004
Kilometers traveled by all vehicles delivering gas in liquid or cylinder form (in millions of km/year)	World	303	325
Estimate of truck transport kilometers avoided through on-site customer units (in millions of km/year)	World	55	54

### Quality and Environmental Certification indicators (2)

	Perimeter (3)	2004
Estimate of the Group's sales % covered by an ISO 9001 Quality Certification	World	65%
Estimate of the Group's sales % covered by an ISO 14001 Environmental Certification	World	14%

(2) The Group's approach to the issue of quality integrates the formalization program for industrial management systems, the Responsible Care commitment and ISO certifications, including Messer activities.



# Human resources

## Indicators for the Group as a whole

Employees (1)	2001	2002	2003	2004	
				Excluding Messer	Including Messer
Group employees	30,800	30,800	31,900	<b>33,500</b>	<b>35,900</b>

### In 2004

Distribution of employees by geographic zones	France	Europe (excl. France)	Americas	Asia-Pacific	Africa
Excluding Messer	<b>32%</b>	<b>28%</b>	<b>22%</b>	<b>14%</b>	<b>4%</b>
Including Messer	<b>30%</b>	<b>32%</b>	<b>21%</b>	<b>14%</b>	<b>3%</b>
Age distribution (2)	under 30	30-40	40-50	50-60	over 60
	<b>16%</b>	<b>34%</b>	<b>28%</b>	<b>20%</b>	<b>2%</b>
% employees resigning in the year					<b>3.4%</b>

Diversity parity	2003	2004
<b>Women</b>		
% women among engineers and managers	14%	<b>17%</b>
% women among engineers and managers hired during the year	24%	<b>31%</b>
% women among employees considered high potential	20%	<b>21%</b>
<b>Number of nationalities</b>		
Among expatriates	36	<b>36</b>
Among senior managers	25	<b>21</b>
Among employees considered high potential	35	<b>37</b>
<b>Training</b>		
% total payroll allocated to training	around 3%	<b>around 3%</b>
Average number of days of training per employee	2.5 days	<b>2.7 days</b>
% employees who attended a training program at least once during the year		<b>67%</b>
<b>Remuneration</b>		
% employees with an individual variable share as part of their remuneration	36%	<b>40%</b>
<b>Performance review</b>		
% employees who have had a performance review meeting with their supervisor during the year	60%	<b>70%</b>
<b>Investment equity</b>		
% capital held by Group employees	0.9%	<b>0.86%</b>
% Group employees shareholders of L'Air Liquide S.A.		<b>Over 40%</b>

(1) Employees under contract, excluding temporary employees.

(2) From this line down, Messer is excluded from all indicators.

Detailed human resources information for L'Air Liquide S.A. is available on request from the "Social Report".



## Objectives

### Diversity

To give ever more say to women in the Group, in particular through recruitment of engineers and managers. Our objective is to increase the hiring of women in this category, from nearly one out of three new hires today to more than two out of five, and this within five years.

### Training

To increase training opportunities so that, within five years, all employees have the chance to enhance their skills and facilitate their advancement through, on average, at least three training days a year.

### Monitoring of performance

In every site, in every region, in every entity, our objective is that 100% of all employees meet their direct supervisor once a year for a performance evaluation interview and meet a manager from the Human Resources Department every three years or so for a career development interview.

# Innovation

## Indicators for the Group as a whole

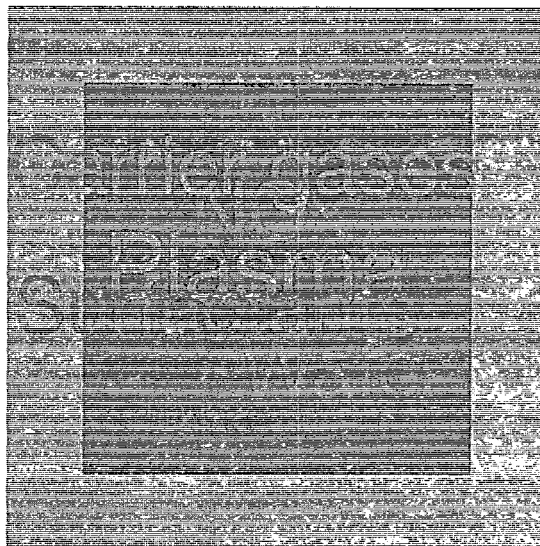
<b>Research</b>		<b>2004</b>
Budget		150 millions of euros
Number of researchers		550 from more than 25 nationalities
Number of research centers		8 (France, Germany, the United States, Japan)
Industrial partnerships		Over 100
International collaborations		Over 100 with universities and research institutes
<b>Patents</b>	<b>2003</b>	<b>2004</b>
New inventions patented during the year	236	225
Patents obtained in the Group's four main zones of operations (*)	105	109

(\*) Europe, the United States, Japan and China.

## Objective

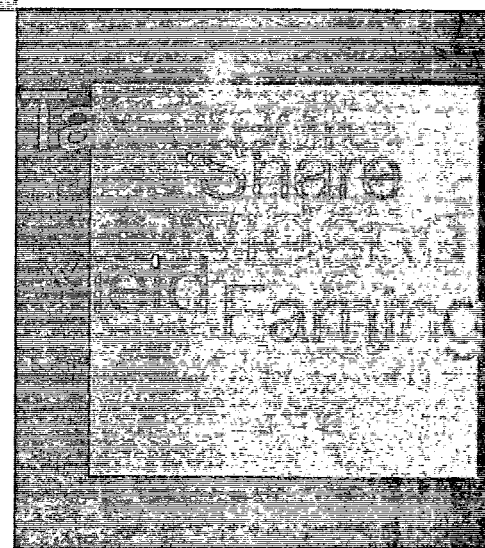
To disseminate innovations within the Group and acknowledge innovators. Within five years, and in the largest number of areas, to obtain over 500 new patents, valid directly in the Group's four main zones of operations: Europe, the United States, Japan and China.

## Glossaries



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# Business glossary

## ■ Adsorption

The retention of gas molecules on a solid surface known as the adsorbent. Adsorption is used either to separate gases (e.g., nitrogen from oxygen) or purify them. For example, water, CO<sub>2</sub> or hydrocarbons may be removed from air gas before separation by a cryogenic air separation unit.

## ■ Aerosoltherapy

The delivery of medications through inhalation. Medications are administered in very fine particles through a nebulizer.

## ■ Arc welding

A welding technique that uses the energy from the electric arc produced between an electrode and the metal workpiece as its source of heat.

## ■ Carrier gases

Carrier gases (e.g., nitrogen, oxygen, and hydrogen, etc.) are used to transport and dilute process gases or to protect semiconductors from minute dust particles.

## ■ Cogeneration

The simultaneous production of steam and electricity. Cogeneration enables more efficient use of primary energy and produces less air pollution, particularly carbon dioxide (CO<sub>2</sub>) emissions.

## ■ Cryoconservation

Conservation, mainly of organic products, at very low temperatures in cryogenic fluids such as liquid nitrogen.

## ■ Cryogenic equipment

Equipment for chilling, producing, transporting, storing and distributing gas at extremely low temperatures.

## ■ Electronics specialty gases

Specialty gases, like silane and arsine, are "process gases" used at each stage of the chip manufacturing process to allow molecular-scale deposits.

## ■ Fab

A plant that makes semiconductors.

## ■ Floxal

Customer on-site nitrogen production service capable of meeting a wide variety of requirements, including purity, consumption profile, pressure and back-up stock. Three technologies are currently used: permeation, which uses polymer membranes, adsorption and cryogenic distillation.

## ■ Fuel cell

A device that combines hydrocarbon or hydrogen with another chemical, usually oxygen, to produce electricity. A hydrogen fuel cell produces electricity and releases only water.

## ■ Gas quenching

Traditional "quenching" consists of plunging metal parts into oil, after they have been heated at a high temperature, to change their mechanical properties. The pieces then have to be washed and the oil recycled. Gas quenching, which uses nitrogen, is an environmentally friendly alternative, since it avoids washing and recycling.

## ■ Greenhouse effect

Just like greenhouse glazing, the earth's atmosphere allows penetration of the sun's rays. When heated by these rays, the earth re-emits infrared radiation, some of which passes back through the atmosphere, but the rest is reflected back towards the earth by "greenhouse" gases in the atmosphere. The main greenhouse gas is carbon dioxide (CO<sub>2</sub>). Reflection of infrared radiation towards the earth maintains its surface temperature. More and more scientists believe that the current heating of the planet is probably the result of an increase in the concentration of greenhouse gases.

## ■ GTL (Gas to Liquid)

The transformation of stranded natural gas into a liquid hydrocarbon. The GTL process, which consumes large volumes of oxygen, provides a solution by converting gases into liquid hydrocarbons free of sulfur, that can be easily transported.

## ■ Membrane/permeation

Similar to the filtration of a liquid through a fabric, permeation of a gas mixture, usually through a polymer-based membrane, allows gases to be separated out. This process is particularly useful in recovering hydrogen from a refinery's waste gases.

### ■ Metrology

Metrology consists in the verification and calibration of measurement devices, a critical procedure to operate a production site. Metrology is thus at the heart of customers' production processes.

### ■ NO<sub>x</sub>

Nitrous oxides are among the pollutants responsible for acid rain. They are part of automobile emissions and are also produced during all high-temperature combustion operations requiring air. Air is composed mainly of oxygen and nitrogen, which can recombine as nitrous oxides. Replacing air with oxygen avoids the formation of these oxides since nitrogen is not present.

### ■ On-site production

Producing industrial and medical gas with equipment installed on the customer's site and operated by Air Liquide.

### ■ Oxygen therapy

The treatment of chronic respiratory insufficiency by administering oxygen to patients at home through oxygen cylinders, oxygen extractors using ambient air, or liquid oxygen tanks.

### ■ Plasma

A gaseous medium in a highly energized state. Plasma is the fourth state of matter, after solid, liquid and gas. It generally occurs at a very high temperature (several tens of thousands of degrees Celsius) and is produced when an electrical charge is applied to the gas.

### ■ PPM

A unit of gas concentration given in parts per million. PPM represents a concentration of one cubic centimeter (cm<sup>3</sup>) of gas in a cubic meter (m<sup>3</sup>).

### ■ PPT

A unit of gas concentration given in parts per trillion. One PPT is 1 part in 1,000,000,000,000. One PPT thus represents a concentration of 1 one-thousandth of a cubic millimeter of gas in a cubic meter.

### ■ Rare gases

Rare gases are natural, inert gases found in the air we breathe in very small volumes: argon (0.9% of air), neon (0.002%), krypton (0.0001%), xenon (0.00001%).

### ■ SO<sub>x</sub>

Sulfur oxides are among the main pollutants responsible for acid rain and certain respiratory illnesses. They are produced during the combustion of hydrocarbons containing sulfur. Hydrogen makes it possible to produce fuels with very low concentrations in sulfur by extracting it from hydrocarbons before combustion.

### ■ Surfactant

A surfactant is a chemical capable of associating both with a fat and with water, allowing a wide range of fat-in-water mixtures. Soap is the most common surfactant. Surfactants have a number of applications in industry, cosmetics and healthcare.

### ■ Sustainable development

The 1987 report by the U.N. World Commission on Environment and Development defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". In simple language, sustainable development balances long-term wealth creation with social performance and environmental conservation.

### ■ Synthesis gas or syngas

A mixture often produced by natural gas or naphtha reformers that contain hydrogen and carbon monoxide in variable proportions depending on the process used. Synthesis gas generally cannot be used without the hydrogen and/or carbon monoxide first being purified. It is used mainly in the chemicals and oil and gas industries.

### ■ TFT-LCD

Thin Film Transistor-Liquid Crystal Display are two technologies used to produce graphic screens that use ultrapure gases in a way that's very similar to the manufacture of semiconductors.

### ■ TGCM

TGCM (Total Gas and Chemical Management) is an Air Liquide services offer that handles every aspect of gas and liquid chemical management, both before and after production of semiconductors, from procurement, quality control, metering and maintenance to the recycling of gases and waste materials.

### ■ TGM

TGM (Total Gas Management) is a services offer identical to TGCM, but it focuses only on gas products.

### ■ Wafer

Wafer: a slice of silicon cut from a silicon ingot with a diameter of 150, 200 or 300 mm. Wafers are used as semiconductor substrates.

# Financial glossary

## ■ **Adjusted price**

Share price adjusted to take account of changes in capital (issue of new shares, share split, etc). The adjusted share price is used to produce meaningful comparisons of price changes over time.

## ■ **Bond**

Tradable security issued by a public or private company, a group or a government. Bonds carry fixed interest for a specific period and are redeemable on maturity.

## ■ **Bonus dividend**

Dividend increased by a maximum of 10%, granted to loyal shareholders for all direct shares held continuously for more than two calendar years.

## ■ **Bonus share allocation**

Transaction by which the company issues new shares at no cost to shareholders in proportion to the number of shares already held. Air Liquide has allocated bonus shares on a regular basis.

## ■ **CAC 40**

Stock market index, weighted by the free float, which tracks the 40 most actively traded stocks on the Euronext regulated markets in Paris. Inclusion is based on size and liquidity criteria.

## ■ **Capital gain**

Gain realized on the sale of a security, that is, the difference between its sale price and its original purchase price, or book value.

## ■ **Cash flow**

Cash generated by a company's operations. Cash flow corresponds roughly to after-tax earnings plus depreciation and amortization and minority interests.

## ■ **Capital employed**

Financial resources used by a company to develop its business. It is the sum of equity, minority interests and net indebtedness.

## ■ **Custody account fees**

Fees charged by a financial intermediary for maintaining share records. They generally represent a percentage of the portfolio or a set fee per line of shares held. Air Liquide's Shareholder Services provides this service free of charge for shares held in a direct registered account.

## ■ **Deferred settlement service (SRD)**

Service available for the most traded stocks by which settlement for orders or delivery of shares is deferred to the last trading day of the month. Air Liquide shares are eligible for this service.

## ■ **Dividend**

The part of the company's net profits distributed to shareholders. Shareholders determine the dividend at the General Shareholders' Meeting after approval of the financial statements and the allocation of earnings proposed by the Management Board in agreement with the Supervisory Board.

## ■ **Euronext Paris**

Company that organizes, manages and develops the securities market and acts as market regulator (financial transactions, monitoring of companies listed on the stock market) with the delegated authority of France's Financial Market Authority (AMF).

## ■ **Euro stoxx 50**

Stock Exchange index composed of 50 of the highest capitalizations and most actively traded stocks listed in the eurozone.

## ■ **Face value**

The issue price of a share as defined in a company's Articles of Association. A company's total capital is the face value of the share multiplied by the number of shares in circulation. The face value of the Air Liquide share is 11 euros.

## ■ **French Financial Market Authority (AMF)**

New market authority resulting from the merger of the Stock Exchange Transactions Commission (COB) and the Financial Market Council (CMF). It governs and oversees the conduct and professional ethics of the markets and protects the interests of investors and shareholders.

## ■ **Fractional rights**

Part of a share that cannot be distributed in the case of a bonus share allocation or subscription if the number of shares held is not a multiple of the transaction. Example: in a one for ten bonus share allocation, a shareholder holding 125 shares is allocated 12 new shares and five fractional rights (i.e., the equivalent of half a share).

■ **Free float**

The part of a company's capital in public ownership and tradable on the stock markets. The higher the free float, the greater the liquidity of the shares. 100% of Air Liquide's capital is floated.

■ **Goodwill**

The difference between the acquisition price and the book value of existing equity capital at the date of entry into the Group's perimeter.

■ **Investment club**

Group of 5 to 20 individuals that jointly manages a securities portfolio by making regular payments and sharing the income and capital gains.

■ **Liquidity**

Ratio of the volume of shares traded over the total number of shares in circulation.

■ **Market capitalization**

A company's market value, equal at any given time to the quoted share price multiplied by the number of shares in circulation.

■ **Net earnings**

Profit or loss made by the company. It is calculated by adding operating income, financial income and expenses, earnings of companies accounted for by the equity method and exceptional items, then subtracting taxes and minority interests.

■ **Net Earnings per Share (EPS)**

Net consolidated earnings divided by the number of shares making up the capital.

■ **Operating income**

Annual sales minus the cost of producing, distributing and selling products and the depreciation or amortization of capital expenditures. It indicates a company's ability to generate the margins necessary for its operation and growth.

■ **PER (Price Earning Ratio)**

The ratio of the market price of a share over earnings per share. It is a measure of how many times the share price capitalizes earnings.

■ **Preferential subscription right**

Tradable right giving shareholders priority in subscribing to a number of new shares in proportion to the number of shares already held in the event of a share issue.

■ **Quorum**

Minimum percentage of shares with voting rights required to be present or represented for a General Shareholders' Meeting to be validly constituted.

■ **ROCE (Return On Capital Employed)**

The ratio of net earnings before financial expenses and after taxes over average capital employed. It reflects the net return on funds invested by shareholders and those loaned by banks and financial institutions.

■ **ROE (Return On Equity)**

The ratio of net earnings over shareholders' equity. It represents the net return on money invested by shareholders.

■ **Share**

Tradable security representing a portion of the company's capital. The owner of a share, the shareholder, is a part-owner of the company and enjoys certain rights.

■ **Share buyback**

Transaction by which a company buys its own stock on the market, up to a limit of 10% of its capital. The transaction requires shareholder approval at the company's General Shareholders' Meeting. In compliance with relevant regulations, these shares can subsequently be retained, sold, transferred or cancelled.

■ **Shareholders' equity**

The part of a company's capital belonging to its shareholders. It includes the value of issued shares, retained earnings and earnings for the period.

■ **Tax credit**

Allowance granted by the French public treasury amounting to 50% of the amount of dividend paid.

■ **Yield**

Ratio of dividend per share over the share market price.



# Supplementary information for the Reference Document



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# General Information

## General information on L'Air Liquide S.A.

### Corporate name and registered offices

L'Air Liquide, a joint stock company run by a Management Board and a Supervisory Board for the study and application of processes developed by Georges Claude.

Registered offices: 75, quai d'Orsay, 75321 Paris Cedex 07 – France

### Legal form

A joint stock company with a Management Board and a Supervisory Board under French law, governed by the Commercial code.

### Law applicable to L'Air Liquide S.A.

French law.

### Foundation and expiry dates

The Company was founded on November 8, 1902, for a set term expiring on February 17, 2028.

### Corporate purpose

The Company's corporate purpose comprises:

the study, exploitation, sale of patents or inventions of Messrs. Georges and Eugène Claude, pertaining to the liquefaction of gases, the industrial production of refrigeration, liquid air and oxygen, and the applications or utilizations thereof.

The industrial production of refrigeration of liquid air, the applications or uses thereof, the production and liquefaction of gases, and in particular oxygen, nitrogen, helium and hydrogen, the applications and uses thereof in all forms, in blends and combinations, without distinction as to state or origin, in all domains of the applications of their physical, thermodynamic, chemical, thermochemical and biological applications, and in particular in the domains of propulsion, the sea, health, agri-business and pollution.

3. The purchase, manufacturing, sale, use of all products pertaining directly or indirectly to the foregoing corporate purpose, as well as all sub-products resulting from their manufacturing or their use, of all machines or devices used for the utilization or application thereof and, more specifically, the purchase, manufacturing, sale, use of products, metals or alloys, derived or resulting from a use of oxygen, nitrogen and hydrogen pure, blended or combined, in particular of oxygenated or nitrogenous products.

4. The study, acquisition, direct or indirect exploitation or sale of all patents, inventions or methods pertaining to the same corporate purposes.

5. The direct exploitation or the exploitation by creating of companies, of everything which is connected, directly or indirectly, with the Company's purpose or is apt to contribute to the development of its industry.

6. The supply of all services, or the supply of all products apt to develop its clientele in the domain of industry or health.

The Company may request or acquire all franchises, make all constructions, acquire or take out on a rental basis all quarries, mines and all real property, and take over all operations connected with its corporate purpose, sell these franchises, assert them, merge or create partnerships with other companies by acquiring shares or company rights, through advances or in any appropriate manner. It may undertake these operations either alone or jointly.

Lastly, and more generally, it may carry out all industrial, commercial, real, personal, financial operations pertaining directly or indirectly to the corporate purposes specified above.

### Business and company register

552 096 281 R.C.S. Paris

APE code: 244A

### Consulting legal documents

The Articles of Association, Minutes of General Shareholders' Meetings and other company documents may be consulted at Company headquarters.

### Financial year

The Company's financial year starts on January 1, and ends on December 31, of the same year.

### Distribution of profits as provided for in the Articles of Association

The Company's net proceeds, established in the annual inventory, after deducing the Company's operating expenses, including all amortization and provisions, constitute the net profits.

From these profits, a deduction is made of the amount necessary for paying to the shareholders, as a first dividend, five percent of the sums paid-up on their shares, and not amortized, and five percent of the sums from premiums on shares issued in cash, and appearing in a "share premium" account, without it being possible, if the profits of a given year do not permit this payment, for the shareholders to claim such amounts from the profits of subsequent years.

The General Shareholders' Meeting may decide to earmark any portion of the available surplus of said profits it wishes for the creation of general or special reserve and providence funds, under any name whatsoever or even simply as an amount carried forward.

The balance constitutes a mass which is intended for the distribution of the second dividend as well as the amount provisionally assessed as necessary to pay a 10% increase to registered shares satisfying the following conditions.

As from January 1, 1996, the shares registered as of December 31, of each year in nominative form for at least two years, and which remain registered until the date of the payment of the dividend, will entitle their owners to collect a dividend per share which is 10% higher, rounded down if necessary to the lower centime, than the dividend per share distributed in respect of other shares, provided that the amount of such latter dividend is at least equal to the amount of the dividend per share distributed in the preceding year for such same shares.

In the event that, as from January 1, 1996, the Management Board, with the approval of the General Shareholders' Meeting, decides, after obtaining the approval of the Supervisory Board, to increase the capital by incorporating reserves, profits, or premiums, the shares registered in the nominative form for at least two years on the date on which the allotment process begins will entitle their owners to an allotment of shares which is 10% higher than the allotment made in favor of other shares, and according to the same procedure.

The increases defined in each of the two preceding paragraphs may be modified or eliminated by simple decision of the Extraordinary General Shareholders' Meeting, according to the procedures it determines.

Pursuant to the law, the number of shares eligible for these increases shall not for any given shareholder exceed 0.5% of the Company's share capital.

When the General Shareholders' Meeting decides to distribute sums drawn from the reserves at its disposal, the resolution shall expressly indicate the reserve items from which the drawing is made.

Except in the case of a reduction of the capital, no sums shall be distributed to the shareholders when following such distribution the shareholders' equity is or would fall below the amount of the capital plus the reserves the distribution of which is prohibited by law or by the Articles of Association.

## **General Meetings**

### **Methods of convocation**

The General Shareholders' Meeting is composed of all the shareholders, regardless of the number of shares they own, on the condition that all due payments have been made thereon and that they are not deprived of voting rights.

In accordance with the law and the Articles of Association, only those shareholders who own nominative shares registered in the share account at least five days before the scheduled date of the meeting may take part in the General Shareholders' Meeting, vote by absentee ballot, or be represented at the meeting. The owners of bearer shares who wish to attend, vote by absentee ballot, or be represented at the meeting must therefore, five days before the scheduled date of the meeting, present proof of a registration in account of their share with an intermediary and of the inalienability of these shares until the date of the General Shareholders' Meeting.

However, the Management Board will always, if it deems it suitable, have the right to shorten these periods. It will also be entitled to authorize the sending by electronic mail to the Company of the proxy and ballot forms in accordance with the legal and regulatory conditions in force.

The General Shareholders' Meeting meets each year, as required by law, during the first semester. It may also meet extraordinarily whenever the Management Board or the Supervisory Board deems that it is useful.

Meetings take place at the registered offices or at any other place designated by the author of the notice.

The General Shareholders' Meeting shall be convened and shall deliberate as prescribed by law. Each shareholder shall have as many votes as the voting shares he or she owns or represents, without further restriction, saving as imposed by the law in force.

### **Conditions of use of voting rights**

The voting right attached to a jointly held share is exercised by the usufruct owner in the Extraordinary General Shareholders' Meeting and in the Ordinary General Shareholders' Meeting. There is no double voting rights.

### **Thresholds set by the Articles of Association**

Any direct or indirect owner, acting alone or jointly, of a fraction of the Company's capital or voting rights is obliged to inform the Company within fifteen days beginning on the date of transacting, and independently of the date of the effective transfer of the ownership of the shares, each time a threshold corresponding to 1% of the share capital or the voting rights is crossed, in either direction, including above the 5% threshold.

In the event of a failure to respect this additional obligation of information, one or several shareholders, owning a fraction of the Company's capital or voting rights amounting to at least 1%, may request that the shares exceeding the fraction which should have been declared be deprived of their voting rights for any General Shareholders' Meeting held until the end of a period of two years following the date on which the notice is rectified. The request will be recorded in the Minutes of the General Shareholders' Meeting.

#### Identification of share owners

The Company may avail itself at any time of the legal and statutory provisions in force permitting the identification of the owners of shares as well as the number of shares they own.

### Capital

#### Amendment of authorized capital and shareholder rights

##### Increase of authorized capital

The share capital may be increased on one or more occasions, either by contributions in kind or in cash, or by incorporating reserves, premiums or profits, or by converting bonds into shares, or exchanging bonds against shares, or by setting-off liquid or payable claims against the Company or by any other means stipulated by law, pursuant to a decision of the Extraordinary General Shareholders' Meeting voted in the conditions set forth in the Articles of Association. However, if the capital increase is carried out by incorporating reserves, profits or share premiums, the decision is taken on the quorum and majority conditions stipulated for Ordinary General Shareholders' Meetings.

The General Shareholders' Meeting will determine the procedures for increasing the share capital; it may also delegate to the Management Board, without prejudice to the powers of the Supervisory Board determined in by Articles of Association, the powers necessary for carrying out said capital increase, on one or more occasions, determining the procedures thereof, and declaring the completion thereof, and making the correlative amendments to the Articles of Association.

In the event of the issue of new shares payable in cash, and unless otherwise decided by the Extraordinary General Shareholders' Meeting acting in accordance with the conditions stipulated by law, the owners of previously created shares who have made all payments called-up or their assignees, will have a preferential right to the subscription of new shares, in the proportion of the amount of the par value of the shares they own. The parties concerned will be notified of this preferential right in accordance with law.

Regulations drawn up by the Management Board, with the approval of the Supervisory Board, will establish the conditions, deadlines and forms in which the benefit of the provisions of the previous paragraph may be claimed.

#### Reduction of authorized capital

The share capital may also be reduced by decision of the General Shareholders' Meeting, by proposal of the Management Board or the Supervisory Board, in the conditions stipulated by law, or by reimbursing or redeeming shares on the Stock Exchange, or by exchanging existing shares for new shares, in an equivalent or lesser number, with or without the same par value, with or without a cash balance to be paid or received. The General Shareholders' Meeting may always compel the shareholders to sell or purchase existing shares to permit the exchange of existing shares for new shares, with or without a cash balance to pay or receive, even if the reduction decided upon may not be the result of losses.

#### Share capital

As of December 31, 2004, the authorized capital was 1,200,989,053 euros, divided into 109,180,823 shares with a par value of 11 euros each, all of the same class.

#### Cancellation of shares and reduction of capital following acquisition by the Company of its own shares

The Combined General Shareholders' Meeting of May 12, 2004, authorized the Management Board to cancel, at its discretion, on one or several occasions, within the limit of 10% of the Company's authorized capital, and per 24-month period, shares purchased under the authorization voted by the Combined General Shareholders' Meeting of May 12, 2004, and those purchased under the authorization voted by the Combined General Shareholders' Meeting of May 15, 2003, and to reduce the capital accordingly.

This authorization is granted for a period of 24 months from the meeting date. Under that authorization, 350,000 shares were cancelled on February 25, 2005.

#### Capital authorized but not issued and commitments to authorize capital

The Combined General Meeting of May 12, 2004, granted the Management Board authority for five years to increase the capital, in one or more stages, by a maximum of 2 billion euros, including premiums:

- either by capitalization of reserves, earnings or premiums;
- or by cash subscription, reserved preferentially to holders of existing shares, or to consignees of their rights, where the corresponding authorizations relate exclusively to shares.

This authority was used up to the level of 111,459,788 euros by a bonus share allocation resolved on May 12, 2004, and implemented on June 14, 2004, in the amount of 108,882,147 euros and on July 13, 2004, in the amount of 2,577,641 euros, corresponding to the allocation plus 10%, in compliance with the Articles of Association.

Moreover, the Combined General Meeting of May 12, 2004, gave the Management Board authority, for a period of 38 months, for the purpose of granting to employees and/or officers, subject to the approval of the Supervisory Board, and the Supervisory Board for the purpose

of granting to members of the Management Board, under sections L 225-177 ff. of the Commercial code, options to purchase new shares of the Company to be issued to increase the capital, or shares of Air Liquide repurchased by the Company, provided that the total number of shares for which options are thus granted not exceed 3% of the Company's share capital on the date the options are granted by the Management Board or the Supervisory Board.

The subscription or purchase price of the shares shall not be less than the average of the opening price over the 20 trading days immediately preceding the date on which the options are granted, rounded down to the next euro.

Under this authorization, 35,385 options to purchase Air Liquide shares were allocated at the Management Board meeting of November 30, 2004.

The Combined General Meeting of May 12, 2004, also granted authority to the Management Board, for a period of five years, subject to the approval of the Supervisory Board, to increase the share capital, in one or more transactions by up to 150 million euros, including premiums, through the issue of shares with a par value of 11 euros, for offering, under sections L 443-1 ff. of the Labor code pertaining to Employee Savings Plans, and to section L 225-138 of the Commercial code, to employees of the Company and some of its subsidiaries, within the meaning of section L 225-180 of the Commercial code, provided that such employees have been in the employ of the Company or its subsidiaries for at least three months, and that the number of shares issued does not to exceed 1,000,000.

The offering price shall not be higher than the average of the share price quoted over the 20 trading days immediately preceding the Management Board's decision setting the opening date of the offering period, nor be lower than 80% of that average price.

This authority has not been used.

### **Securities not representing capital**

The Combined General Meeting of May 12, 2004, authorized the Management Board, for a period of five years, to issue one or more debentures amounting to a maximum of 4 billion euros, in one or more stages, at the times and on the terms that it deems fit.

To date, the Group has issued debentures for a total of 1 billion euros.

### **Other securities giving access to capital**

#### **Convertible bonds**

The Combined General Meeting of May 12, 2004, authorized the Management Board, for a period of five years, in one or more stages, both in France and abroad, to issue bonds convertible to shares worth a maximum of 1,500 million euros, either in euros or in foreign currency or in currency units set in reference to several currencies. Shareholders' preferential rights are maintained.

This authority has not been used.

#### **Share subscription options**

As of December 31, 2004, the number of adjusted options outstanding, allocated and not yet exercised, was 3,775,531.

## Trend in capital over the past five years

Issue date	Nature of transaction	Number of shares created	Cumulative number of shares	Capital increase	Issue premiums and reserves	Capital amount
<i>(in euros except for shares)</i>						
29 Feb 00	Exercise of share subscription options	437,171	82,868,169	4,808,881	30,292,847	911,549,859
04 May 00	Exercise of share subscription options	4,419	82,872,588	48,609	227,878	911,598,468
04 May 00	Bonus share allocation (one for ten)	8,287,258	91,159,846	91,159,838	(91,159,838)	1,002,758,306
19 July 00	Bonus share allocation (one for ten) Loyalty premium	225,381	91,385,227	2,479,191	(2,479,191)	1,005,237,497
01 Mar 01	Exercise of share subscription options	58,341	91,443,568	641,751	3,722,286	1,005,879,248
01 Mar 01	Cancellation of acquired shares	(575,529)	90,868,039	(6,330,819)	(69,943,267)	999,548,429
04 Apr 01	Cancellation of acquired shares	(424,471)	90,443,568	(4,669,181)	(51,235,439)	994,879,248
29 Dec 01	Increase of capital reserved for employees	300,823	90,744,391	3,309,053	36,700,406	998,188,301
18 Jan 02	Exercise of share subscription options	82,502	90,826,893	907,522	5,392,170	999,095,823
25 Feb 02	Cancellation of acquired shares	(1,500,000)	89,326,893	(16,500,000)	(208,682,216)	982,595,823
30 Apr 02	Exercise of share subscription options	25,499	89,352,392	280,489	1,589,828	982,876,312
30 Apr 02	Bonus share allocation (one for eight)	11,169,049	100,521,441	122,859,539	(122,859,539)	1,105,735,851
15 Jul 02	Bonus share allocation (one for eight) Loyalty premium	269,951	100,791,392	2,969,461	(2,969,461)	1,108,705,312
10 Jan 03	Exercise of share subscription options	27,049	100,818,441	297,539	1,615,735	1,109,002,851
25 Feb 03	Exercise of share subscription options	2,768	100,821,209	30,448	157,084	1,109,033,299
25 Feb 03	Cancellation of acquired shares	(1,000,000)	99,821,209	(11,000,000)	(123,464,901)	1,098,033,299
15 May 03	Fusion with COFIGAZ	1,868	99,823,077	20,548	110,949	1,098,053,847
26 Jan 04	Exercise of share subscription options	98,639	99,921,716	1,085,029	5,633,424	1,099,138,876
27 Feb 04	Cancellation of acquired shares	(1,000,000)	98,921,716	(11,000,000)	(118,723,907)	1,088,138,876
12 May 04	Exercise of share subscription options	62,055	98,983,771	682,605	3,719,905	1,088,821,481
12 May 04	Bonus share allocation (one for ten)	9,898,377	108,882,148	108,882,147	(108,882,147)	1,197,703,628
13 Jul 04	Bonus share allocation (one for ten) Loyalty premium	234,331	109,116,479	2,577,641	(2,577,641)	1,200,281,269
21 Jan 05	Exercise of share subscription options	70,369	109,186,848	774,059	5,902,371	1,201,055,328
25 Feb 05	Exercise of share subscription options	3,193	109,190,041	35,123	319,081	1,201,090,451
25 Feb 05	Cancellation of acquired shares	(350,000)	108,840,041	(3,850,000)	(41,812,039)	1,197,240,451

Since 1996, each allocation of bonus shares entails two capital increases: the first corresponds to the new shares allocated to all existing shares. This takes place on the date of resolution by the Management Board to proceed with the transaction, authorized by the Supervisory Board. The second corresponds to the new shares allocated as a loyalty premium, only to shares registered continuously for more than two years. This takes place on the date of recording of completion of the transaction by the Chairman of the Management Board.

## Market for the Company's shares

### Place of listing

L'Air Liquide S.A. shares are listed only in Paris on the Eurolist of Euronext regulated market, ISIN code FR0000120073 and are eligible for the Deferred Settlement Service.

### Other listed securities of L'Air Liquide's consolidated subsidiaries and affiliated companies

Société d'Oxygène et d'Acétylène d'Extrême-Orient, listed in Paris under ISIN code FR0000031171.

Séchilienne-Sidec, listed in Paris under the ISIN code FR0000060402.

## Share performance

### Stock price over the past 18 months

Prices are adjusted to take into account the allocation of one bonus share for ten held, effective June 14, 2004.

Month <i>(in euros)</i>	Securities exchanged during month	Close	High	Low
Sept 03	9,854,064	110.27	124.73	109.27
Oct 03	8,779,642	115.91	119.27	108.55
Nov 03	8,137,510	121.82	123.64	116.18
Dec 03	7,351,678	127.27	128.09	120.46
Jan 04	8,401,861	122.46	129.00	119.09
Feb 04	6,322,024	129.64	131.91	121.46
Mar 04	7,725,143	125.91	132.27	122.00
Apr 04	8,695,215	132.82	138.46	125.73
May 04	8,981,125	131.64	135.00	126.36
June 04	11,148,279	135.90	138.50	129.55
July 04	6,182,307	134.50	138.20	130.00
Aug 04	7,119,836	128.60	134.00	122.50
Sept 04	7,853,704	126.30	133.70	125.80
Oct 04	7,878,869	126.60	131.80	124.00
Nov 04	6,593,112	130.10	134.70	126.40
Dec 04	8,301,755	136.00	136.50	128.60
Jan 05	8,315,611	131.90	138.10	129.60
Feb 05	7,444,664	135.70	137.90	131.20

### Stock Exchange price and trading volume

Year	Daily averages				
	Number of securities	Capital <i>(in thousands of euros)</i>	High <i>(adjusted)</i>	Low <i>(adjusted)</i>	Close
2000	227,598	32,807	131.50	94.91	128.40
2001	335,843	52,570	143.03	105.13	127.19
2002	421,246	62,170	145.46	101.46	114.27
2003	429,685	55,075	128.09	95.46	127.27
2004	367,580	49,994	138.50	119.09	136.00

## Dividends

Year (in euros)	Paid	Net Dividend (1)	Tax credit	Total income	Number of shares	Distribution
2000	05/10/01	3	1.5	4.5	91,429,644	274,288,932
		0.3	Bonus dividend (2) 0.15	0.45	24,944,295	7,483,289
						<b>281,772,221</b>
2001	05/07/02	3.2	1.6	4.8	90,821,483	290,628,746
		0.32	Bonus dividend (2) 0.16	0.48	23,315,671	7,461,015
						<b>298,089,761</b>
2002	05/21/03	3.2	1.6	4.8	100,818,441	322,619,011
		0.32	Bonus dividend (2) 0.16	0.48	24,489,228	7,836,553
						<b>330,455,564</b>
2003	05/18/04	3.2	1.6	4.8	99,912,917	319,721,335
		0.32	Bonus dividend (2) 0.16	0.48	24,266,063	7,765,140
						<b>327,486,475</b>
2004	05/17/05	3.50 (3)	(4)	3.50	109,180,823	382,132,881
		0.35 (3)	Bonus dividend (2)	0.35	25,876,746	9,056,861
						<b>391,189,742</b>

(1) Ordinary dividend paid on all shares.

(2) Bonus dividend paid only on shares registered continuously for two calendar years.

(3) Subject to the approval at the General Shareholders' Meeting of May 11, 2005.

(4) The dividend paid out for the 2004 fiscal year does not carry an *avoir fiscal* (special French tax credit), but gives rise to a 50% allowance instead, as provided for in section 158-3 subsection 2 of the Tax code.

# Responsibility for Reference Document and statutory auditors

## Person responsible for the Reference Document

Benoît Potier, Chairman of the Management Board of L'Air Liquide S.A.

## Certification of person responsible for the Reference Document

"To the best of my knowledge, the data contained in this Reference Document are true. They contain all the information investors need in order to assess the assets, activities, financial situation, profits and prospects of L'Air Liquide S.A. and its Group, and omit nothing that might alter their implications."

Benoît Potier  
Chairman of the Management Board

## Report of the statutory auditors on the Registration Document (*Document de Référence*)

*(Free translation of a French language original)*

In our capacity as statutory auditors for L'Air Liquide S.A. and in compliance with Article 211-5-2 of the AMF General Regulation, we have verified, in accordance with French professional standards, the information in respect of the financial position and historical financial statements included in the accompanying Registration Document.

This Registration Document is the responsibility of the Chairman of the Management Board who signed this document. Our responsibility is to issue a conclusion on the fairness of the information contained therein with respect to the financial position and financial statements.

MAZARS & GUÉRARD  
Frédéric ALLILAIRE

The statutory auditors

ERNST & YOUNG Audit  
Jean-Claude LOMBERGET

We conducted our examination in accordance with French professional standards. This examination consisted in assessing the fairness of the information on the financial position and financial statements and to verify their consistency with the audited financial statements. We also read other financial information contained in the Registration Document in order to identify any significant inconsistencies with information in respect of the financial position and financial statements and to bring to your attention any obvious misstatements we noted based on our general understanding of the Company gained through our audit. The prospective information presented by management is based on their intentions and not on a properly prepared individual component or item.

We issued an unqualified opinion on the annual and consolidated financial statements drawn up by the Management Board in compliance with accounting rules and principles applicable in France and for the year ending December 31, 2004, in accordance with French professional standards.

RSM Salustro-Reydel and Ernst & Young Audit issued an unqualified opinion on the annual and consolidated financial statements drawn up by the Management Board in compliance with accounting rules and principles applicable in France and for the years ending December 31, 2003, and 2002, in accordance with French professional standards.

On the basis of our examination, we have nothing to report on the fairness of the information on the financial position and the financial statements included in the Registration Document.

Paris-La Défense, April 8, 2005

The Registration Document also includes the following reports:

- The statutory auditors' report on the annual and consolidated financial statements as of December 31, 2004 (shown respectively on page 20 of the 2004 "Rapport Social" incorporated by reference and on page 137 of the Registration Document) which include the basis of their assessment in accordance with Article L.225-235 of French company Law (*Code de Commerce*);
- In accordance with Article L.225-235 of French company Law (*Code de Commerce*), the statutory auditors' report (on page 148 of this Reference Document) on the report prepared by the Chairman of the Supervisory Board of L'Air Liquide S.A. that describes the internal control procedures for the preparation and treatment of accounting and financial information.



# Cross-referencing schedule for the Reference Document

The Reference Document includes this Annual Report and the Social Report for 2004. To facilitate reading of the Annual Report filed as Reference Document, the following schedule will help identify the main information required by the *Autorité des Marchés Financiers* (French Financial Market Authority) under its regulations and instructions for implementation.

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The present Reference Document was registered on April 8, 2005, with the *Autorité des Marchés Financiers* (AMF), in compliance with sections 211-1 to 211-42 of its General Regulation. It can be used in support of financial operations when a note of operation stamped by the *Autorité des Marchés Financiers* complements it.

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# Ten-year consolidated financial summary

	Notes	1995	1996	1997	1998	1999
Key figures in millions of euros						
Net sales		4,907.2	5,241.5	5,851.3	6,087.6	6,537.7
Of which Gas and Services		4,102.4	4,324.3	4,959.9	5,194.2	5,694.0
Operating income		649.1	663.2	782.5	847.6	935.0
Net earnings		405.7	422.7	471.1	515.6	562.7
Funds from operations (cash flow)		860.9	910.0	1,013.5	1,156.5(6)	1,308.4
Payments on industrial investments		548.4	887.3	1,173.2	1,222.5	1,129.4
Payments on financial investments		117.2	157.8	95.3	211.6	309.0
Distribution	(1)	143.6	160.1	179.4	205.2	221.7
Shareholders' equity at year-end		3,398.5	3,759.1	4,171.5	4,346.9	4,926.8
Net indebtedness at year-end		525.2	842.0	1,258.6	1,676.8	2,432.7
Capital						
Number of shares issued and outstanding		66,279,226	73,117,927	73,156,045	82,921,825	82,862,583
Adjusted number of shares	(2)	111,601,187	112,939,222	113,003,564	113,006,560	112,509,903
Results per share in euros						
Net earnings per share	(3)	3.63	3.74	4.17	4.56	5.00
Dividend per share		2.13	2.13	2.38	2.40	2.60
Total dividend (including tax credit)		3.20	3.20	3.57	3.60	3.90
Dividend adjusted per share		1.25	1.38	1.54	1.75	1.90
Ratios						
Return on equity (ROE)	(4)	12.4%	11.8%	11.9%	12.1%	12.1%
Return on capital employed after tax (ROCE)	(5)	11.5%	11.0%	10.5%	10.1%	9.6%

(1) Dividend: Since 1995, a bonus dividend equal to 10% of the dividend has been allocated to shares registered for more than two years as of December 31, preceding the year, and held until the date of the payment of the dividend. In 2004, the bonus dividend amounts to 0.35 euro per share (no dividend tax credit is included), representing a total amount of 9.1 million euros.

(2) Dividend: Without withholding tax of 8.7 million euros in 2003, 83.9 million euros in 2002, 68.0 million in 2001, 36.1 million in 2000, 26.2 million in 1999, 19.2 million in 1998, 13.6 million in 1997, 13.7 million in 1996, 8.8 million in 1995 and including a surplus dividend of 9.1 million euros in 2004, 7.8 million euros in 2003, 7.8 million in 2002, 7.5 million in 2001, 5 million in 2000, 6.3 million in 1999, 6.1 million in 1998, 5.5 million in 1997, 4.1 million in 1996 and 2.2 million in 1995.

(3) Dividend: Adjusted to account for the weighted number of shares outstanding resulting from stock dividends declared in 2004, 2002, 2000, 1998, 1996 and 1994, stock offerings (from 1995 to 2004) and treasury shares.

(4) Dividend: Calculated on the adjusted weighted number of shares outstanding during the year (excluding treasury shares).

	Notes	2000	2001	2002	2003	2004
Key figures in millions of euros						
Net sales		8,099.5	8,328.3	7,900.4	8,393.6	9,376.2
including Gas and Services		7,113.6	7,256.7	6,887.0	7,388.5	8,275.2
Operating income		1,116.0	1,177.6	1,161.6	1,196.0	1,276.9
Net earnings		651.8	701.9	703.2	725.6	777.5
Funds from operations (cash flow)		1,564.3	1,627.4	1,514.1	1,542.2	1,694.9
Payments on industrial investments		910.2	769.8	632.8	746.8	875.4
Payments on financial investments		104.8	332.4	306.9	74.9	2,858.5
Distribution	(1)	281.8	298.1	330.5	327.5	391.2
Shareholders' equity at year-end		5,285.9	5,353.3	5,219.3	5,079.2	5,373.6
Net indebtedness at year-end		2,280.3	2,583.5	2,022.3	1,730.2	3,790.3
Capital						
Number of shares issued and outstanding		91,429,644	90,821,483	100,818,441	99,912,917	109,180,823
Adjusted number of shares	(2)	112,214,133	110,736,776	109,477,929	108,624,523	107,937,967
Results per share in euros						
Net earnings per share	(3)	5.81	6.34	6.42	6.68	7.20
Dividend per share		3.00	3.20	3.20	3.20	3.50
Total dividend (including tax credit)		4.50	4.80	4.80	4.80	3.50
Dividend adjusted per share		2.41	2.57	2.90	2.90	3.50
Ratios						
Return on equity (ROE)	(4)	12.8%	13.2%	13.4%	14.1%	14.9%
Return on capital employed after tax (ROCE)	(5)	10.5%	10.7%	10.8%	11.6%	11.3%

(4) Return on equity: (Net earnings)/(weighted average of shareholders' equity).

(5) Return on capital employed after tax: (Net earnings after taxes and before minority interests - financial income (expense) after taxes)/weighted average over the period of (shareholders' equity + minority interests + net indebtedness).

(6) Excluding the net capital gain of 38.3 million euros from divesting the hydrogen peroxide business.

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