2020 Shareholder's Guide

More than shares,



O Air Liquide

More than shares, a stake in the future

Each day, we contribute to building tomorrow's world. We contribute to the progress of all industries. We support changes in healthcare, to provide better patient care and a healthcare system that benefits everyone. We help make the energy transition possible. We help accelerate the opportunities available through the digital transformation.

You are 420,000 shareholders to have the same vision. You are 420,000 to have a stake in the future. Together, we are inventing the future.

Emilie and her son, William, Air Liquide shareholder for a few months

The Air Liquide group

A world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with approximately 67,000 employees and serves more than 3.7 million customers and patients. Oxygen, nitrogen and hydrogen are essential small molecules for life, matter and energy. They embody Air Liquide's scientific territory and have been at the core of the Company's activities since its creation in 1902.

Air Liquide's ambition is to be a leader in its industry, deliver long-term performance and contribute to sustainability. The company's customer-centric transformation strategy aims at profitable, regular and responsible growth over the long-term. It relies on operational excellence, selective investments, open innovation and a network organization implemented by the Group worldwide. Through the commitment and inventiveness of its people, Air Liquide leverages energy and environment transition, changes in healthcare and digitization, and delivers greater value to all its stakeholders.

Air Liquide's revenue amounted to 22 billion euros in 2019 and its solutions that protect life and the environment represented more than 40% of sales. Air Liquide is listed on the Euronext Paris stock exchange (compartment A) and belongs to the CAC 40, EURO STOXX 50 and FTSE4Good indexes.

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Supporting changes in healthcare

In response to the major upheavals in healthcare, we are helping to collectively reinvent a more human and efficient system which is beneficial to everyone.

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Building the future, with you

Because your loyalty is essential, we are committed to building with you a trust-based relationship which values transparency, dialog and proximity.



TO ASSIST YOU IN ALL SHAREHOLDER PROCEDURES, CONSULT OUR FACTSHEETS IN THE SEPARATE DOCUMENT.

Sharing stakes in the future

Dear Shareholders,

2019 was a landmark year for your Group, with significant progress in three areas: improved performance, and in particular a higher operating margin; a high level of investments to serve our customers and strengthen our efficiency; and finally, the operational implementation of our climate action plan.

This progress is the result of a clear strategy which targets profitable, steady and responsible growth over the long term. More than ever, our 67,000 employees are committed to achieving our objectives and I would like to take this opportunity to recognize their dedication, professionalism and inventiveness, which are essential to the Group's success.

Strong growth in 2019

In 2019, your Group sales climbed +4.3% to 22 billion euros, with a +6.1% increase in net profit^(a) to 2.2 billion euros. Excluding exceptional items, recurring net profit^(b) was up +11.1%^(c). All Gas & Services activities, which account for 96% of Group revenue, progressed^(d), with particularly dynamic Electronics and Healthcare. Geographically, every region grew^(d), notably the Europe and Asia-Pacific regions. Overall, and despite the global economic slowdown observed in the fourth quarter, the Group delivered robust results in 2019, confirming the relevance of our economic model and strategy.

Improved performance

In addition to strong sales, all financial indicators improved. I would like to mention, in particular, the marked improvement in the operating margin. After the increase seen in 2018, it climbed a further +70 basis points^(e) in 2019. This new stepup was driven by three factors: the dynamic management of both pricing and product mix (towards offerings with greater value-added), as well as the asset portfolio and efficiencies. The latter reached 433 million euros. Cash flows were high and the debt to equity ratio has been further reduced to 64%. The Group's balance sheet is therefore solid. Finally, return on capital employed^(f) improved further this year and reached 8.6%. This good performance means that in 2020 a dividend of 2.70 euros^(g) per share will be proposed, which represents

> Benoît Potier, Chairman and Chief Executive Officer of Air Liquide

a strong growth of +12.4%^(h). Moreover, in 2020, assuming no major changes in the environment and the international health situation is under control. Air Liquide is confident in its ability to further increase its operating margin and to deliver net profit growth, at constant exchange rates.

Marked rise in investments

In an environment offering many industrial opportunities, in 2019 we decided to significantly increase investment level to 3.7 billion euros. This demonstrates the high level of commitment to our customers, particularly with new projects signed in Large Industry and Electronics that will allow us to further strengthen our position in major industrial basins. We have

also made investments to improve our industrial efficiency, as well as to develop new markets such as hydrogen and biomethane, which are not only sources of future growth but also contribute to the emergence of a low-carbon society.

Contributing to the development of a low-carbon society

I would like to take this opportunity to reflect on the fight against global warming which has become a key focus. I believe that companies - and notably industrial companies - have a major role to play, in particular during the decade ahead of us. The work that we carry out with our customers, as well as through the Hydrogen Council, which just three years after its creation brings together more than 80 global industrial players, is an excellent illustration of the growing collective awareness for the need for climate action. At Air Liquide, we made strong commitments just over a year ago when we announced our "Climate Objectives", which are the most ambitious in our sector. They target, in particular, a 30% reduction in our carbon intensity by 2025⁽ⁱ⁾. This approach, which largely involves the Group's employees, implies taking measures with regard to our assets but also extends to our customers and all of our ecosystems. It is in this context that a number of projects relating to the energy transition, in the area of CO₂ emissions reduction or of hydrogen, were signed in 2019.

Sharing stakes in the future

Inventing the future has been our business for over a century. Your Group is constantly innovating to meet its customers' expectations and address increasingly specialized scientific and technological challenges, with the aim of being useful to society as a whole, in areas where we are able to make

"I am pleased to see that even more of you have decided to join the Air Liquide share ownership adventure." a difference. As a shareholder, you therefore support a Group which is firmly focused on the future. And I am pleased to see that even more of you have decided to join the Air Liquide share ownership adventure. The Group is extremely proud of this growing interest and the loyalty of our individual shareholders. When meeting with you, I truly

appreciate the extent to which your choice to invest is not just a financial decision but is also driven by strong beliefs. More than just shares, you own "stakes in the future", a future that - like us - you hope will be more sustainable and responsible considering the numerous challenges our world is facing today. Inventing this future implies coupling financial success with common good, combining individual outlook with collective challenges, and never sacrificing tomorrow for the sake of the present.

This shared vision is what unites us.

This shared vision is the theme that we have chosen to illustrate, in particular through many of our shareholders' personal stories, in this new edition of the Shareholder's Guide that is dedicated to you.

Thank you for your trust and loyalty.

(a) Net profit (Group share).

(d) On a comparable basis, i.e. excluding the currency, energy (natural gas and electricity) and significant scope impacts.

- (f) Based on the recurring net profit
- (g) Proposed for the 2019 fiscal year at the Annual General Meeting on May 5, 2020. (h) Taking into account the free share attribution of 1 for 10 carried out in October 2019.

⁽b) Recurring net profit (Group share) excluding exceptional and significant transactions that have no impact on the operating income recurring. (c) Change excluding the currency, energy (natural gas and electricity) and significant scope impacts.

⁽e) Change excluding energy

The Board of Directors

The Board of Directors, composed of 12 members, determines the Group's major strategic orientations and ensures their implementation. It reports to the shareholders on its activities during the Annual General Meeting, an important moment for shareholder democracy. It relies on four Board Committees:

- the **Audit and Accounts Committee**, which reviews, in particular, the control and risk management procedures within the Group, as well as the process for preparing financial and extra-financial information;
- the **Environment and Society Committee**, which examines the Group's strategy and commitments in societal and environmental fields;
- the **Appointments and Governance Committee**, which ensures the proper functioning of the Group's governance bodies;
- the **Remuneration Committee**, which examines the performance and remuneration policy of Corporate Officers.

45% of the elected members are women

6 foreign members

8

independent Directors out of 11 elected members

L Director representing employees



From left to right: Geneviève Berger, Pierre Dufour, Sin Leng Low, Thierry Peugeot, Siân Herbert-Jones, Benoît Potier, Jean-Paul Agon, Annette Winkler, Karen Katen, Philippe Dubrulle, Brian Gilvary, Xavier Huillard.

The Executive Committee

In 2019, Air Liquide announced that it was strengthening its Executive

Committee to step up the implementation of its transformation strategy. With a stronger, younger, more feminine, and more international team with a broader range of expertise, the Group is able to better support not only its customers but also the industrial and societal changes on a global scale.

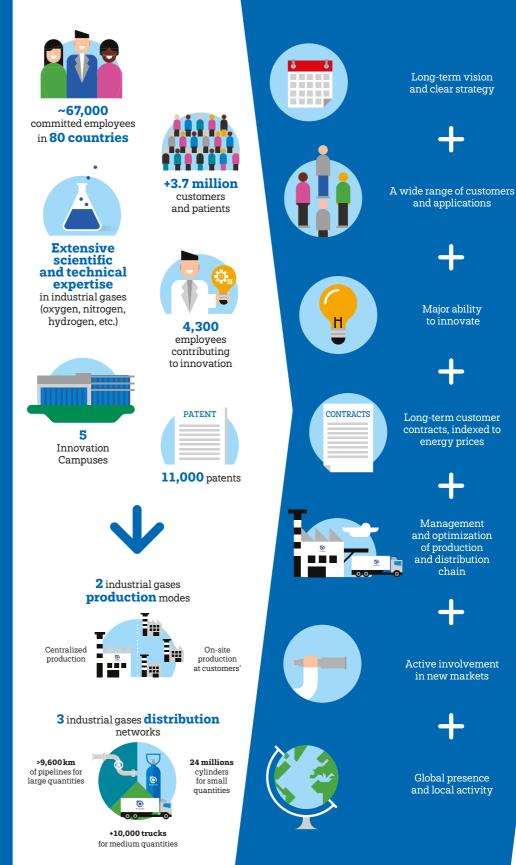
5 women among its 14 members



The Executive Committee members: Benoît Potier, Michael J. Graff, François Jackow, Fabienne Lecorvaisier, Guy Salzgeber, Jean-Marc de Royere, François Venet, François Abrial, Susan Ellerbusch, Matthieu Giard, Armelle Levieux, Emilie Mouren-Renouard, Diana Schillag, Pascal Vinet.

OUR PROFILE

OUR BUSINESS MODEL





A world leader in industrial gases and related services

> A unique model

OUR ACTIVITIES

LARGE **26%**^(a) **INDUSTRIES**

Industrial gases in large quantities in the framework of long-term partnerships

INDUSTRIAL MERCHANT

4%^(a)

Industrial gases in small and medium quantities. application technologies, small equipment and related services serving a wide range of customers

ELECTRONICS

9%

17%^(a)

Ultra-pure gases in large quantities and development of new molecules

HEALTHCARE

Medical gases, products and services to support patients and customers in the hospital and at home

GLOBAL MARKETS & TECHNOLOGIES 3%

Molecules, equipment and services to support the markets of energy transition and deep tech(b)

ENGINEERING 1%^(a) **& CONSTRUCTION**

Plants and equipment for industrial gas production

TO SUPPORT ALMOST ALL ECONOMIC SECTORS



- Chemicals
- Refining & energy
- Metals
- Materials & energy
- Automotive & fabrication
- Food & pharmaceuticals
- Technology & research
- **Entrepreneurs & distributors**
- Semiconductors
- Flat panels
- Photovoltaic
- Hospitals
- Home healthcare
- **Hygiene & specialty** ingredients

Energy transition Deep tech(b)

Customers choosing to insource their industrial gas needs

Contributing to the progress of all industries

Industry must reinvent itself in order to be more competitive, more efficient and safer while also becoming more environmentally friendly. There are several drivers of this change: technological innovation, digital solutions, big data^(a), and more. Thanks to its expertise, coupled with the in-depth knowledge of its customers' processes in almost all industries, Air Liquide plays a key role in supporting these changes.

(a) Technological field dedicated to analyzing very large volumes of data.

Inventing a more efficient and low-carbon industry with our customers

Every day, Air Liquide serves a large number of industries and, for each customer, our commitment remains the same: contributing to the quality of their products and their growth, while optimizing their efficiency and reducing their environmental footprint. We therefore work in partnership with them to design innovative solutions.

Innovating for all industries

Our customers in the glass industry use oxy-combustion, a process which is based on the enrichment of air with pure oxygen during combustion to enhance its efficiency. HeatOx technology, developed by Air Liquide, allows to further improve this process by reusing heat produced by the production process to pre-heat the fuel and oxygen before combustion. We therefore reduce oxygen and natural gas consumption as well as CO_2 emissions, while also decreasing nitrogen oxide emissions.

In the maritime transport industry, we have developed a solution for tankers carrying Liquefied Natural Gas (LNG). This refrigeration and liquefaction technology, based on the "Turbo-Brayton" physical principle, reliquefies the evaporated natural gas and keeps it in the container in liquid form in order to significantly reduce greenhouse emissions during transport.

In electronics, we have created enScribe[™], a new family of advanced materials capable of etching the memory chip architectures at a nanometric scale while also reducing their impact on the environment.

Exploring new applications for our gases

 CO_2 in concrete? This is the key to new sustainable concrete and is the focus of our partnership with American start-up Solidia Technologies, renewed in 2019. Water is replaced by CO_2 , which reduces the concrete's curing time, sequestrates large quantities of CO_2 and reduces water consumption. Hydrogen for the production of steel? This is the focus of a pioneering project for lower carbon steel production in partnership with thyssenkrupp Steel, a world leading supplier of carbon steel flat products. At one of their blast furnaces in Germany, we inject hydrogen to partially replace pulverized coal at a large scale during steel production and thus reduce CO_2 emissions.

Did you know?

The only use of one molecule of the enScribe™ family by a major semiconductor customer has contributed to reducing CO₂equivalent emissions by 1% in this sector worldwide.

-20%

This is thyssenkrupp Steel's CO₂ emissions reduction target thanks to the new low-carbon steel production project set up in partnership with Air Liquide.

~50

This is the number of contracts signed by Air Liquide over the last two years to roll out the "Turbo-Brayton" solution which reliquefies natural gas boil-off on LNG carriers. The Group therefore contributes to avoiding more than 240,000 tons of CO_2 - equivalent emissions per year.

Industry in the digital age

Since our creation in 1902, industrial gases have been at the core of our business. In 80 countries, we currently supply more than 2 million customers in the industrial sector. And in this digital era, we are working to improve our operational excellence and to better meet the needs of our customers, while supporting them in their transformation.

Data to improve industrial efficiency

As part of our "Smart & Innovative Operations" program (SIO), we have introduced a predictive maintenance system to improve the reliability of 200 of our production sites. This program also optimizes the energy consumption of our sites using data collected each day and the human intelligence of our operators and big data experts.

Modernized packaging centers

Our teams are also working on robotization projects. The aim: modernizing our gas filling centers to optimize delivery times for customers and facilitate their lives, from the order intake through to delivery. At the end of 2019, we thus inaugurated our first robotized cylinder gas order preparation unit in Feyzin, near Lyon. The handling of cylinders is made easier and deliveries are optimized with next-day delivery from the moment an order is received. This modernization program will be rolled out until 2023 across our three largest French filling sites.

New range of innovative solutions

We also innovate to meet the requirements of our welding customers, who often work in highly competitive markets and must manage several factors. Therefore, after working in collaboration with more than 700 welding customers, we created Qlixbi. This offer includes a new generation of gas cylinder, which is safer and more practical, as well as a range of digital solutions which help them manage inventories and facilitate team work thanks to a dedicated application. The welding experience is therefore transformed and simplified.

\$155 bn[®]

This is what the global industry 4.0^(b) market could represent by 2024 – compared to around 66 billion dollars in 2017.

1 bn

This is the number of data that we collect each day using sensors at our production facilities.

+700

This is the number of customers who took part in the creation of Qlixbi, the new revolutionary solution for welders.

and greater robotization.

⁽a) Zion Market Research - Industry 4.0 Market by Technology and by Vertical: Global Industry Perspective, Comprehensive Analysis, and Forecast, 2017-2024 - 2018.
(b) Industry 4.0 refers to the new generation of plants which rely on connected objects, artificial intelligence, big data



Pushing the boundaries of science

From infinitely small...

Smartphones, connected cars, virtual reality, artificial intelligence: all of these rapidly-growing technologies rely on solutions among those developed by the electronics industry. As a major supplier of gases and services for this market, Air Liquide helps its customers meet a key challenge: fitting more functionalities into increasingly powerful and smaller chips, on a nanometric scale, while ensuring the cleanliness and stability required in electronics manufacturing. A technological achievement which requires the supply of ultra-pure gases, advanced materials as well as the equipment and services needed to use them under the best possible conditions.

To go even further, we have decided to invest in co-construction. In 2019, we launched a collaborative project with STMicroelectronics, a world leader on the semiconductor market, to step up the development of digital solutions for industrial applications. This cooperation strengthens the long-standing relationship between our two companies.

~3,850 This is the number of Air Liquide experts dedicated to the

semiconductor industry.

7 nm

This is the size of silicon transistors in 2019, compared with 65 nanometers in 2005. This reduction was partly facilitated by the Group's advanced materials.



Raphaël Rochat Ph.D., Air Liquide Electronics researcher at the Innovation Campus Tokyo

"The core structures of electronic devices are becoming so unbelievably small that some parts are only several atom layers thick. The Innovation Campus Tokyo is contributing significantly to this industry by supplying advanced materials and processes that enable the production of such high-tech devices which end up in our smartphones and PCs – and I am very excited to be part of the forefront driving this technological evolution."





... to infinitely big

At Air Liquide, we also reach for the stars. Our unique expertise in cryogenics and gas engineering allows us to provide strong added-value to the largest international space projects and to support space exploration. For example, we designed the launchers' cryogenic tanks of Ariane 1 through to Ariane 5, the MELFI cold production system onboard the International Space Station (ISS), and helium storage solutions and cooling systems for the Herschel and Planck satellites^(a). We are also maintaining a presence on the launch bases of Kourou in French Guiana, Cape Canaveral in the United States and Tanegashima in Japan.

We are continuing to develop our expertise and innovate on projects such as the future European launcher Ariane 6, the electric propulsion of satellites, and several other projects relating to space exploration to the Moon and Mars. We are currently working, for example, on the production and storage of oxygen and hydrogen, which are essential to support life and space transportation, as part of the "LUNA" project^(b) and the ExoMars mission^(c).

+50

This is the number of years of experience for Air Liquide in space exploration.

~300

This is the number of Air Liquide employees who work on challenges related to the exploration of space.



Christiane Muller Vice President of Air Liquide Global Markets & Technologies World Business Unit "Projects implemented to support space exploration allow us to constantly push technological limits. All the expertise gathered and the innovations developed are then reused in cutting-edge fields on Earth. We are therefore investing in technology that will be part of humans' daily life in the future."

 ⁽a) In the framework of the programs run by the European Space Agency (ESA), the Herschel and Planck mission is to better understand the creation and evolutions of the Universe, from the Big Bang to the present day, notably by detecting the oldest radiation emitted by the Universe.
 (b) Air Liquide has joined forces with ESA and the German aerospace center (DLR) under the "LUNA" project which seeks

⁽b) Air Liquide has joined forces with ESA and the German aerospace center (DLR) under the "LUNA" project which seeks to establish a "Moon village" analog near the European Astronaut Centre (EAC) in Cologne in Germany.
(c) After Curiosity, Air Liquide is taking part in 2020 in the ExoMars mission, in partnership with ESA and the Russian Space Agency Roscosmos. This mission consists in sending a small vehicle (rover) to the red planet to analyze the composition of its subsoil.









"Our stake in the future is supporting an exceptional industrial heritage and passing it on to future generations."

> Bernadette and Henri, Air Liquide shareholders for more than 20 years



"My stake in the future is to be part of a company which contributes to the digital transformation."

Huimin, Air Liquide shareholder for two years

Acting for the planet

To address the issue of climate change and scarcity of natural resources, we must all ask ourselves questions regarding our way of life, of producing, consuming, working, traveling, etc. Air Liquide is supporting the emergence of a low-carbon society. To do so, we take tangible measures to develop more efficient and more sustainable solutions for our own business, but also to support our customers and the entire ecosystem.

Our Climate objectives: where are we at?

November 2018: we reached a new level in terms of our commitment to the climate by announcing our Climate objectives for 2025. These are the most ambitious objectives in our sector and are part of a global approach including the way in which we conduct our business, support our customers in adopting low-carbon solutions and our growing positive impact on society as a whole. One year on from this announcement, clear progress has been made, underlining the commitment and unwavering efforts of all our teams.

2025 objectives Where are we at?^(a) Reducing our carbon intensity by 30% by 2025 Reduction in carbon intensity compared with the 27% based on 2015 emission levels: 2015 carbon intensity. Increase in renewable energy purchase since 2015, 1- Increasing our purchases of renewable +24% electricity by nearly 70%. which is 36% of the target to be achieved. Decrease in energy consumption per m³ of air gas -1.2% produced compared with 2015. 2 - Improving the energy efficiency of our production units by 5%. Increase in energy consumption per m³ of hydrogen 0.2% produced since 2015. 3 - Reducing the carbon footprint of our bulk Improvement in the efficiency of the delivery of bulk and cylinder products by 10% through -1.9% products compared to 2015 (in km by ton of product the optimization of both production transported). and transportation and the efficiency of delivery rounds. **Taking action with** our customers CO₂ emissions avoided by Air Liquide or its clients 16.8 Mt Rolling out low-carbon offerings and solutions. in 2019. Major pilots to reduce the carbon footprint Co-developing innovative procedures 3 with our customers. of our customers. 1.1 TWh^(b) Biomethane production capacity. Expanding the circular economy. Taking action for the planet Cryogenic air conditioning for Blueeze™ Developing clean refrigerated transport. >300 and Cryocity[™] trucks. Promoting hydrogen for clean mobility. >120 Hydrogen stations designed and installed by the Group. Creating a global hydrogen economy. 81 Companies now members of the Hydrogen Council.

(a) Data as at December 31, 2019. (b) Terawatt-hours.

Taking action within our Company

Towards a low-carbon society

A year on from the announcement of its Climate objectives, we discuss with David Meneses, the Group's Vice President Sustainability, regarding Air Liquide's driving role in the transition towards a low-carbon society.

To address the issue of climate change, what role does Air Liquide want to play?

David Meneses: Air Liquide aims to actively contribute to a more sustainable world through its innovative solutions. Our 2025 Climate objectives, announced at the end of 2018, have helped us take an important step towards encouraging the transition to a low-carbon society. To do so, we have adopted a global approach by taking actions within our activities, with our customers and all our ecosystems. We are enthusiastic as we can rely on strong support from within the Group and, just one year down the line, tangible progress can already be seen^(a).

Are these objectives compatible with Air Liquide's growth strategy?

D. M.: At Air Liquide, combining growth and responsibility has been our philosophy for a long time. It is true that the innovative solutions which we are developing serve the planet, but they are also sources of opportunities. Regulations, the increasingly high expectations of consumers, as well as the growing commitments of companies, are encouraging our customers to adopt a low-carbon approach and we are well-positioned to support them in doing so. New markets are also appearing, such as biomethane and hydrogen energy, in which we are heavily involved. These markets represent an increasing share of our revenue: biomethane grew strongly in 2019, a business which did not even exist five years earlier! "Clean" energy growth prospects are significant.

In addition to the climate, does Air Liquide make commitments in other areas?

D. M.: Yes, of course! Take, for example, our employees. Their safety is our absolute priority with a "zero accident" ambition which requires the involvement of everyone within the Company and its subcontractors. Ethics and the respect of Human Rights are of course vital in the running of our business, as well as encouraging the diversity of employee profiles, which is a true source of performance. For example, one of our objectives is to reach a rate of 35% of women among our employees in "managers and professionals" by 2025.



David Meneses Air Liquide Vice President Sustainability

A List

Air Liquide has been named on the CDP's^(b) "A List" for its positive climate action and for its sustainable water management. Air Liquide thus enters the narrow circle of companies that have obtained a double "A".

Non-financial performance at the heart of a new financing mechanism

Air Liquide has signed an amendment to its syndicated credit line. From now on, its financing cost and commissions are linked with the achievement of three CSR^(c) criteria regarding its carbon intensity, gender diversity and safety.

 ⁽a) See page 25.
 (b) Non-profit organization that evaluates companies on their environmental action
 (c) Corporate Social Responsibility.



With biomethane, waste becomes an excellent source of energy

Each year, human activity produces more than 2 billion tons of municipal waste worldwide, the majority of which ends up either burnt or buried, whereas it could be recovered. To address this issue, organic materials from farming and household or industrial waste can be converted into biomethane, a clean and renewable energy source that can be used as a substitute for fossil-based natural gas.

Air Liquide is aware of its potential and is developing technologies dedicated to converting biogas into biomethane for three main usages: the production of clean fuel, domestic and industrial use as a substitute for fossil fuels, and low-carbon hydrogen production (without CO_2 emissions). The Group is thus present throughout the entire value chain of this energy source. A unique positioning which makes Air Liquide a key player in this market throughout the world.

2.01 bn

This is the quantity, in tons, of municipal waste generated worldwide in 2016. If nothing changes, global annual waste generation is expected to jump by +70% by 2050^(a).

(a) World Bank - What a Waste 2.0 - 2018.

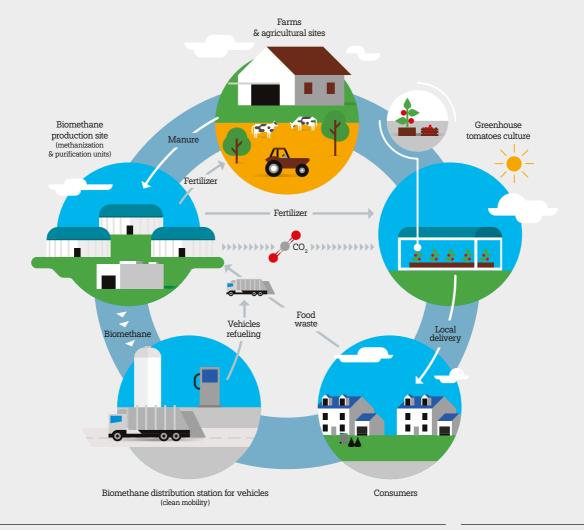


Nothing is lost, everything is transformed: the "Magic Factory" example in Norway

In the Oslo region, Air Liquide has partnered with local players to develop a circular economy based on the production and use of biomethane. How? A digester processes household waste as well as manure from neighboring farms. This waste ferments and emits biogas, which is captured and purified. Some of this biogas becomes biomethane, which is used as fuel for vehicles in the region, in particular for garbage trucks, thanks to a bio-NGV (Bio-Natural Gas for Vehicles) station operated by Air Liquide. The rest (the digestate) as well as the CO₂ removed from the biogas are used on-site as fertilizer for greenhouse crops. This valorization of resources also generates growth and employment for the region.

Did you know?

The use of biomethane as fuel for trucks reduces their particulate matter emissions by 85%, CO_2 emissions by 90% and noise pollution by 50% compared with diesel engines.



Hydrogen energy at the heart of the energy transition

In over 50 years, Air Liquide has developed unique know-how across the entire hydrogen chain (from production to storage and distribution). Through its expertise, the Group contributes to the wider use of hydrogen as a source of clean energy. A long-term commitment in the hydrogen energy markets and a strong ambition: becoming a major player in the supply of low-carbon hydrogen.

Developing clean mobility

Hydrogen energy is one solution to the clean mobility challenge, to power cars, buses, trucks, trains, boats and even planes. Hydrogen-powered vehicles are electric vehicles equipped with a fuel cell which transforms hydrogen into electricity. The result: zero CO_2 emitted, zero particulate and zero noise; these vehicles only emit water.

Answering the renewable energy storage challenge

Hydrogen is also an important ally for renewable energies in the energy transition challenge. It addresses the issue of intermittent electricity production (day/night alternation for solar power, irregular winds for wind power) by storing the electricity generated in the form of hydrogen. Adapting to real time needs, this hydrogen could then be reused to produce electricity, and thus facilitate the integration of renewable energies into existing energy networks.

"There are no miracle solutions in the fight against climate change. Hydrogen is an essential part of the low-carbon transition."

Pierre-Étienne Franc, Air Liquide Vice President Hydrogen Energy

Towards a hydrogen society

Hydrogen energy can also be used to heat our homes, fuel certain sectors such as heavy industry using clean energy sources, and meet the increasing energy needs of digital technologies, such as data centers. A framework for human activity which is much less dependent on fossil fuels is gradually being built, paving the way for a "hydrogen society".

Did you know?

In 2019, Air Liquide announced the construction in Canada of the largest PEM (Proton-Exchange Membrane) electrolyzer in the world for the production of low-carbon hydrogen. With a 20 megawatts capacity, this facility will be commissioned in autumn 2020. It will help prevent the emission of 27,000 tons of CO_{2} each year, equivalent to the annual emissions of 10,000 sedan cars. Air Liquide therefore meets the growing demand for low-carbon hydrogen for both industrial use and transportation.

-60%

This is the estimated decrease in the cost of producing low-carbon hydrogen by 2030^(a).

(a) Hydrogen Council, McKinsey report - Path to Hydrogen competitiveness, a cost perspective - 2020

Three technologies to produce low-carbon hydrogen



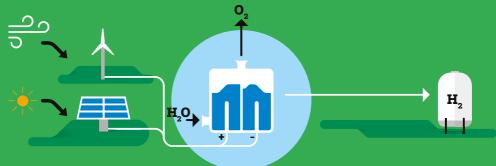
1. By reforming methane, fossil-based, and capturing CO₂ emissions

Methane reforming is currently the most widely-used method to produce hydrogen. To limit the impact of this production, Air Liquide has developed Cryocap^M. This cryogenic process (involving low temperatures to separate gases) enables a reduction in CO₂ released during hydrogen production while also increasing the hydrogen production efficiency.



2. By reforming biomethane

It is also possible to produce hydrogen through reforming but using biomethane as a source. This makes it possible to switch from fossil fuel-based gases to a gas derived from the decomposition of organic waste and thus with a low-carbon footprint.



3. Through water electrolysis

This is an alternative method of producing low-carbon hydrogen by using water and electricity produced using renewable energies (solar, wind, etc.). The electrolyzer separates oxygen from hydrogen, which is then compressed and stored.

"My stake in the future is investing in an ethical and responsible company, in particular in terms of the environment."

Olivier, Air Liquide shareholder for 15 years





"Léo's stake in the future is supporting a company that strives to protect mankind and the planet."

Léo, Air Liquide shareholder for a few months, and her parents, Camille and Olivier



"My stake in the future is sharing with the Group the ambition of seeing the development of green transport and maybe even a hydrogen-fueled bike one day."

Damien, Air Liquide shareholder for 2 years

Supporting changes in healthcare

Today, healthcare is changing: the population, life expectancy, but also the number of people who have chronic conditions are increasing. New challenges are emerging, in particular to better coordinate patient care and facilitate the sharing of information between the various players along the care pathway.

Air Liquide, alongside healthcare professionals, is striving to establish a better patient follow-up and to build a more efficient healthcare system for all, in order to create the conditions for the apeutic and economic efficiency.

Support the hospital evolution

As a partner of the hospital sector for many years, we work alongside 15,000 hospitals and clinics throughout the world. By anticipating their needs and patients' new ways of life, we are supporting the transformation of this sector and helping healthcare professionals care for their patients.

New healthcare needs

Whether it is in the emergency department, operating theater or intensive care units, our medical gases and associated services enable healthcare professionals to care, relieve pain, anaesthetize and improve respiratory functions. And as demand for care is increasing around the world, as healthcare needs change, and as hospitals themselves evolve, we help them respond to the structural challenges they face. That includes welcoming an increasing number of patients, reducing costs while maintaining the quality of care, operating in an increasingly complex healthcare network and cooperating with new players, but also taking advantage of the opportunities presented by digital and technological progress.

Innovative offerings for hospitals

We constantly work with healthcare professionals to design new solutions which are adapted to their needs. Lighter and easier to use medical gas cylinders were invented in this way. These cylinders display the remaining consumption time and emit a warning sound when the level is low. These functions improve patient safety and help optimize medical gas consumption. We also work with an array of public and private science and technology organizations to develop other solutions which strive to be better adapted to practitioners' and patients' needs.

Did you know?

Air Liquide researchers are exploring new properties of pure and mixed gases, in particular for applications in fields such as neurology and pain management. They are also developing innovative solutions for cardiac resuscitation and e-health.

"Hospitals are among our long-time customers. We work with them constantly to come up with new solutions that range from the design of new generations of medical gas cylinders to the use of digital technologies to simplify the tasks of healthcare teams, and the implementation of an optimal hospital-to-home transition."

Diana Schillag, Vice President in charge of Europe Healthcare Operations and the Healthcare World Business Line

Preserve the everyday quality of life of patients

The new challenge in terms of chronic diseases

Today's world is faced with a major increase in the number of chronic diseases. Why is this? An aging population, changes in lifestyle (nutrition, a sedentary lifestyle, etc.), but also medical progress which allows us to live longer with conditions which in the past could not be treated. Because a chronic disease lasts, it requires patients to learn how to live with it, permanently. Maintaining their independence and quality of life, and that of the people around them, therefore becomes an everyday challenge.

Solutions to improve healthcare

As a major world player in home healthcare, Air Liquide accompanies 1.7 million patients suffering from chronic diseases such as respiratory diseases, diabetes and Parkinson's disease on a daily basis. Our approach: a personalized and patient-focused monitoring, coordinated with all healthcare professionals. The challenge: optimizing care from a therapeutic, organizational and economic point of view.

Our personalized care offering, coupled with digital solutions, takes into account parameters including physiological data, lifestyle and family circumstances to better meet patients' needs. For example, Madeleine, who has been diabetic for many years, is visited by an Air Liquide home nurse, which has helped her to better control her insulin pump treatment. When she has questions, she can now contact expert nurses at any time via a helpline. Lastly, a connected monitor allows her blood glucose to be checked in real time and helps avoid unnecessary medical appointments. Her doctor is only notified in the event of a problem.

Drawing on its human, expert and technological approach, the Group thus contributes to the overall care of patients in their homes and plays a role in the wider coordination of players throughout the care pathway.

1 in 6

people in the world will be over the age of 65 by $2050^{(a)}$.

60%

of people aged over 70 suffer from at least one chronic disease in industrialized countries^(b).

Did you know?

In 2019 and at the beginning of 2020, Air Liquide pursued its development in Home Healthcare in Europe by broadening its range of services for diabetes patients in Germany, Belgium, the Netherlands and Luxembourg.

(a) United Nations - World Population Prospects 2019 - 2019.

(b) Stenholm S, Westerlund H, Head J et al. - Comorbidity and functional trajectories from midlife to old age. The Health and Retirement Study - 2014.

Technological innovation for people suffering from diabetes

Air Liquide supports innovation to improve the quality of life of people with diabetes. The Group, via its venture capital investment fund ALIAD, has acquired an equity stake in the French start-up Diabeloop. This start-up is working on a medical device capable of automatically delivering the correct dose of insulin to patients with type-1 diabetes^(a). Interview with Erik Huneker, its founder and Chief Executive Officer.

Could you tell us more about the solution that you are working on?

Erik Huneker : We are developing a personalized system that reproduces the functions of the pancreas that have been destroyed by type-1 diabetes. Through an insulin pump and a blood sugar sensor, both connected and driven by an algorithm, the optimal dose of insulin is calculated and delivered to the patient in real time.

How long have you been working with Air Liquide?

E.H.: In 2017, Air Liquide invested in our start-up and is now helping us bring this system to the market. In addition to their connection to patients and hospitals, this collaboration gives us access to home healthcare providers who help patients in their day-to-day lives. Their experience is essential.

How will this innovation change the lives of patients with diabetes?

E.H.: This disruptive innovation will help improve the daily lives of the millions of people affected by this disease in Europe. By making the management of this condition partially automatic, this technology will spare patients the burden of making complex calculations and will optimize their treatment.

Erik Huneker Founder and CEO of the Diabeloop start-up

463 M This is the number of adults with diabetes in 2019 worldwide. By 2045, this number will rise to 700 million^(b).

(a) Diabetes refers to an excess of glucose in the blood over a prolonged period of time. In the case of type-1 diabetes, or insulin dependent diabetes, this imbalance is caused by the destruction of pancreatic cells specialized in insulin production by the patient's own immune system.
(b) International Diabetes Federation - Facts and figures - 2019.



People and digital technologies working together for...

Society

The increase in chronic diseases has led us to review how they are treated at the community level. By providing appropriate homecare, indirect costs, such as those related to absence from work, isolation and instability, should be better managed.

Patient

Personalized follow-up and the ability to contact Air Liquide's teams by telephone (or text message) contribute to better treatment observance and to reassure the patient.

75

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Family

Family members are often the primary caregivers of chronically-ill patients. Better understanding of treatment, easier interactions with healthcare professionals, and human and digital support all contribute to lightening the load for these caregivers.

Hospitals

Hospitals are faced with major challenges: accommodating an increasing number of patients, responding to the challenges facing medical staff, reducing costs without impacting the quality of care, taking advantage of digital opportunities, etc. Air Liquide has been supporting hospitals since its creation and provides effective solutions to these challenges, while ensuring an optimal hospital-tohome transition.

Healthcare coverage authorities

TTTTTTTTT

Public and private healthcare coverage authorities are shifting towards performancebased payments. The remuneration of healthcare providers is adapted to the patient's level of adherence, in other words, to his or her level of commitment to the treatment prescribed. This approach leverages the quality of services provided to patients and savings for the healthcare system as a whole.

Healthcare professionals

Air Liquide encourages the efficient coordination of healthcare professionals by allowing patient information to be collected remotely and shared continually using connected devices. The result: fewer unnecessary appointments and more time for high value-added medical procedures and discussions with the patient.

Contributing to an efficient healthcare system which benefits everyone

Interview with Grégory Olocco, Vice President of Markets, Strategy and Innovation at Air Liquide Healthcare Business Line.

The expectations of healthcare systems and healthcare coverage authorities have changed drastically in recent years. How does Air Liquide adapt to this trend?

Grégory Olocco : All over the world, healthcare systems are facing the question of their own sustainability. Both direct and indirect cost management has become crucial. In the case of chronic diseases, unsuitable care support or failure to adhere to treatment can lead to major consequences: complications, emergency hospital admissions, as well as side effects, absence from work, etc. The result: everyone misses out, both patients and society. For this reason, public and private healthcare coverage authorities are shifting towards more efficient approaches, such as performance-based payments in France. The remuneration of healthcare providers, such as Air Liquide, is no longer simply dependent on delivering a health service. It could be adapted to the patient's level of adherence, in other words, to his or her level of commitment to the treatment prescribed. This new, overall approach takes into account the value created for the patient and the savings generated for the system as a whole.

In this context, how is the Group positioned and what are its strengths?

G. O.: We believe that committing to patients adherence to treatment is essential. To do so, we rely on two of our major strengths: our close human proximity with our patients at home and our ability to innovate, in particular in terms of digital solutions. Combined with the human factor, connected healthcare enables the personalization of patient follow-up, the detection of any complications, the anticipation of re-hospitalization and the streamlining of interactions between healthcare players. This unique combination, reinforced by an operational excellence that is recognized by healthcare professionals, represents the added-value of Air Liquide's solutions.

"The remuneration of the healthcare provider could be adapted to the patient's level of adherence, in other words, to his or her level of commitment to the treatment prescribed."



Grégory Olocco Vice President of Markets, Strategy and Innovation at Air Liquide Healthcare Business Line

50%

of patients worldwide suffering from chronic diseases do not correctly adhere to their treatment^(a).

€85 bn^(b)

in France in 2016 to monitor and treat chronic diseases.

(a) WHO - Adherence to long-term therapies: evidence for action - 2003.
 (b) French Social Security - Income and Expenses Report - 2019.

"My stake in the future is taking part to the journey of a company which helps to advance technologies to meet healthcare needs. Because when you are healthy, you have everything."

> Baye Souleye, Air Liquide shareholder for one year





"My stake in the future is being associated with an innovative Group that is interested in a field important to me: healthcare."

Marie, Air Liquide shareholder for 16 years

Building the future, with you

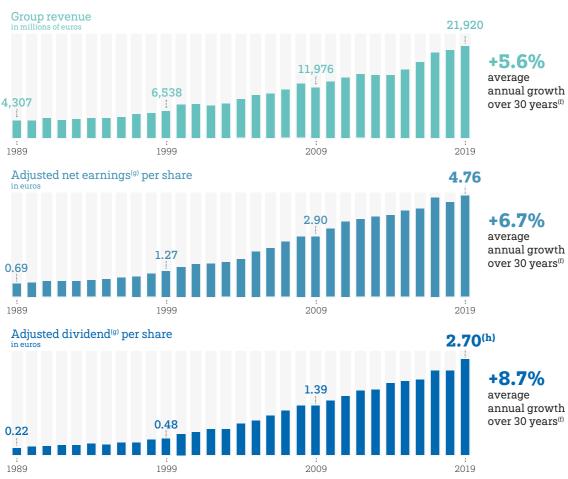
Cécile, Air Liquide shareholder for 38 years

Individual share ownership has been part of Air Liquide's identity since its creation in 1902. Today, you are 420,000 individual shareholders to have placed your trust in us, and your loyalty is a guarantee of our independence and our stability. Thanks to you, we can pursue a long-term strategy, innovate in the face of new challenges and prepare for the future. That is why we have always been committed to your participation in our growth and to building a close sustainable relationship with you.

A regular and responsible growth over the long-term

2019 performance

2019 was a landmark year, characterized simultaneously by a significant improvement in performance, a high level of investments to serve our customers and strengthen our efficiency, and the operational implementation of our climate action plan. Group revenue for 2019 totaled 22 billion euros, up +4.3%. Net profit^(a) rose to 2.2 billion euros, up +6.1%. Excluding exceptional and significant transactions, recurring net profit^(b) Group share was up +11.1%(c). All Gas & Services activities and all geographic zones have progressed(d). In addition, all financial indicators improved, especially the operating margin, that climbed a further +70 basis points^(e) in 2019. The efficiencies reached 433 million euros. Cash flows were high and the debt to equity ratio declined substantially. Air Liquide's balance sheet is strong.



A growth over the long-term

(a) Net profit (Group share).

(b) Recurring net profit Group share excluding exceptional and significant transactions that have no impact on the operating income recurring

(d) On a comparable basis, i.e. excluding the currency, energy (natural gas and electricity) and significant scope impacts.
 (d) On a comparable basis, i.e. excluding the currency, energy (natural gas and electricity) and significant scope impacts.

(e) Change excluding energy.
 (f) Calculated according to prevailing accounting rules over 30 years

(g) Adjusted for the 2-for-1 share split in 2007, for attributions of free shares and for a factor of 0.974 reflecting the value of the rights of the capital increase completed in October 2016.

(h) Proposed for the 2019 fiscal year at the Annual General Meeting on May 5, 2020. Note: this document should not be considered as investment advice. Please read the risk factors detailed in the Universal Registration Document, available at airliquide.com.

Understanding and calculating the profitability of your portfolio

By choosing to become an Air Liquide shareholder, you are placing your trust in us and supporting our business development. For this reason, we are committed to involving you in our growth and, more generally, in the Company's corporate life.

Measure the return on your shares

To assess the overall performance of your investment, four factors must be taken into account:

- share price performance;
- the **dividend**, which we pay you regularly. Historically, its total amount accounts for around 50% of the Company's net profit;
- **free shares**, which we regularly attribute to all our shareholders. Although this offer does not have an immediate effect on the value of your portfolio, it increases your dividend rights the following year;
- the 10% **loyalty bonus** on the dividend paid, as well as on the attribution of free shares for shareholders who have held their registered shares for more than two full calendar years.

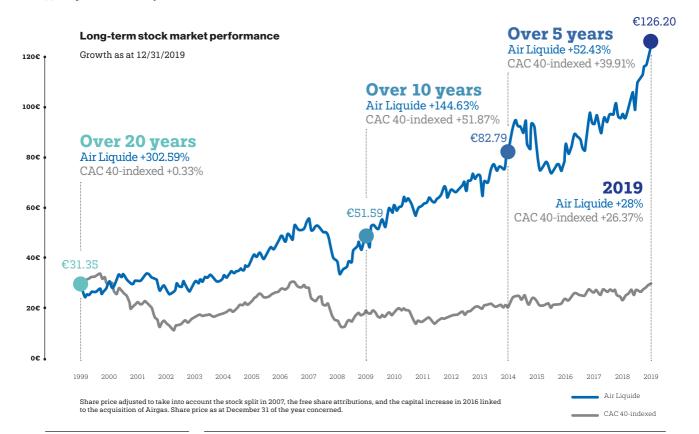
+10%

This is the loyalty bonus for registered shareholders.

€2.70

per share. This is the amount of the dividend proposed in 2020^(a), a growth of +12.4% compared with last year^(b).

(a) Proposed for the 2019 fiscal year at the Annual General Meeting on May 5, 2020
 (b) 2018 figures restated for the impact of the free share attribution in October 2019.



How to calculate your shares' earnings?

Share price performance, the payment of dividends and free share attributions as well as the loyalty bonus all contribute to the return on your investment in shares. A measure of this is the "Total Shareholder Return" (TSR). Expressed as an average percentage per year, TSR can be compared with the interest rate that would have remunerated your capital if you had placed it in an interest-bearing bank account or a life insurance contract instead of in a securities account.

With the former types of account, interest from each period gradually increases the capital, and bears interest in turn: this is the principle of compound interest. By analogy, TSR is calculated by assuming that dividends received are reinvested in shares, which in turn pay dividends and entitle the holder to free share attributions and the loyalty bonus in the following years. TSR thus allows you to directly compare the return on your equity investment with the yield on your other investments, such as more classic savings products.

A steadily expanding portfolio

Your Air Liquide share portfolio expands even more when you decide to reinvest your dividends in shares: they therefore contribute to increasing your portfolio's performance.

The TSR presented below was calculated based on a registered shareholder eligible for the loyalty bonus, who benefited from free share attributions and who reinvested dividends received in shares every year.

(a) Interest for each period is included in the capital to gradually increase it and in turn bear interest. Note: past performances of Air Liquide's share are not a guarantee of future results. This document should not be considered as investment advice. Please read the risk factors detailed in the Universal Registration Document, available at airliquide.com.

Portfolio growth over the past 5, 10 and 20 years (TSR)

+10.70% per year +12.63% per year +11.98% per vear sted 🗙 🤰 €763 97 ê €328.60 €176.09 €100 €100 2014 2019 2009 2019 1999 2019

Value of portfolio at December 31, 2019 and average annual growth, before taxes. Note: dividends are recognized as having been reinvested in shares. The Preferential Subscription Rights relating to the capital increase undertaken in September 2016 are recognized as having been sold, then reinvested in shares

30th

The October 9, 2019 free share attribution, on the basis of one free share for every 10 shares held, was the 30th in Group history.

Did you know?

There is an exponential effect with compound interest^(a). The longer you hold your shares, the faster the value of your portfolio increases. "My stake in the future is taking part in the adventure of a one-hundred-year-old company which constantly innovates to prepare for the future."

1

Stéphane, Air Liquide shareholder for 25 years

Supporting you every day

Being an Air Liquide shareholder is about more than simply owning shares. It is also about playing a role in the Group's corporate life and growth. Air Liquide therefore strives to regularly communicate on its strategy and outlook, and maintain a close relationship with you, its shareholders.

Maintaining human contact

More than 30 Shareholder Services advisors are available each day to answer all your questions and provide you with the personalized services that you require. During the Annual General Meeting and meetings organized with shareholders across the country, they join the Group's business experts.

Keeping you regularly informed

Because we are committed to staying in touch with you all year round, we invite you to discover the Group's business and news in your Shareholder's Guide, as well as in the two editions per year of your Interactions letter, and finally via your new online magazine "Stock & Share" which is available in the "Shareholders" section of the airliquide.com website. Each month, the latter sheds light on your Group's news and the world of share ownership thanks to our experts.

Stay informed – subscribe to the "Stock & Share" newsletter at https://www.airliquide.com/shareholders/newsletter.

Managing your shares in just a few clicks

If you are a direct registered shareholder, you can manage your portfolio directly and easily through your personal online Account: stock market orders, personal information, account documents, vote on the resolutions presented to the Annual General Meeting, etc.

Access your personal Account in the "Shareholders" section of the airliquide.com website.

420,000

individual shareholders holding

32% of the capital.

64%

of Air Liquide individual shareholders have owned their shares for more than 10 years^(a).

Today it is possible to open an account 100% online

Since January 2020, it is now possible to open a direct registered account online. Supporting documentation could be photographed or scanned. You will receive notification of the opening of your account by text message. You can then place your stock market orders directly from your personal online Account.

(a) Havas-Opinion Way survey - Cassons les idées reçues (Let's break down received ideas) - Air Liquide section, carried out between October 29 and November 10, 2018 of a representative sample of individual Air Liquide shareholders

Developing the share ownership of the future

Individual share ownership is essential to Air Liquide's long-term growth model, and provides a solid foundation for its development. It is important that this relationship based on trust which we enjoy with the Group's 420,000 shareholders continues to be built upon with new generations, who are seeking performance but also purpose.

The younger generation, tomorrow's investors?

Today, two-thirds of Millennials and Xennials^(a) say that they save every month^(b). Looking for performance over time, they nonetheless favor regulated products that provide low yield (the French Livret A savings product, the French Compte Épargne Logement - home purchase savings account). The main reason for this? A lack of information regarding the mechanisms for investing in shares and a lack of time to take an interest in the stock market.

> "It is often said that the new generation does not understand the role of individual share ownership and of the stock market. I personally believe that companies have a role to play in informing and convincing them to invest in shares."

Benoît Potier, Chairman and Chief Executive Officer of Air Liquide

Promoting the role of shareholder

Raising awareness is therefore a major challenge for Air Liquide. That is why we carry out studies to better understand their expectations and reach out to these new audiences. In 2019, we took part in the first "Investir Day" event held in Paris, which attracted close to 4,000 visitors, of which more than one-third were aged under 35 and curious to discover the world of share ownership. Our aim is to show them that, by investing in Air Liquide, they are acting for themselves but are also contributing to the real economy. This results in the preservation and creation of jobs and, in Air Liquide's case, in initiatives relating to energy transition and the evolution of the healthcare sector.

Comics for the youngest shareholders

Do you want to pass on or buy Air Liquide shares for your children or grandchildren, even if they are minors? This is possible. What is more complicated is explaining the purpose of share ownership to them and how the system works. To help start discussions on this subject and provide the keys to understanding. we have designed comics adapted to the age of the child receiving the shares. Starting with a very simple picture book for the youngest, the content becomes more detailed according to the child's age. Children of all ages can therefore better understand the role of individual share ownership and discover the Air Liquide adventure.

(b) Infopro Digital Études / Air Liquide - Investissement en entreprise : les jeunes Français en quête d'information (Corporate investment: young French people in search of information) – 2017 and Les Millennials et Xennials et l'investissement en entreprise (Millennials and Xennials and corporate investment) - 2018.

⁽a) Millennials: individuals born between 1984 and 2000, Xennials: individuals born between 1978 and 1983.

Léo and her father Olivier

"My stake in the future is thinking today about passing on shares in the future. It is a family affair that started with my grandmother and then my father. It will continue with my son and, Thope, my grandson."

Bernadette, Air Liquide shareholder for one year





"My stake in the future is sharing the values of environmental responsibility and innovation, which I would like to pass on to my children."

> Laurent, Air Liquide shareholder for around 10 years and his son, Maxime



On the cover

Arnaud, Air Liquide shareholder for two years

Arnaud was given shares by his grandfather to introduce him to the world of stock market... and to strengthen their relationship.

Contact us throughout the year:

Shareholders Lounge: open Monday - Friday, 9am to 6pm (GMT+1), at 75, quai d'Orsay, 75007 Paris, France By phone: +33 (0)1 57 05 02 26 (from outside France) or 0800 166 179 (free from a French landline) By mail: Service actionnaires TSA 91948 - 62978 Arras Cedex 9, France @AirLiquideGroupf AirLiquide

airliquide.com

