

# Sustainability

at the heart  
of the future



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# *Sustainability* at the heart of the future

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# Toward a *sustainable future*



Inventing and shaping the future has always been part of Air Liquide's DNA. In 2021, we announced new sustainability objectives, the most ambitious in our industry. For years we have integrated sustainability into our strategy, working across the Group to define and develop our objectives.

As such, sustainability is now firmly embedded in our long-term performance as a concrete commitment and an integral enabler for value creation. It also anchors our business model, which emphasizes consistent performance in the present while laying the groundwork for a sustainable and profitable future.

As the first-ever Air Liquide publication dedicated exclusively to our Environmental, Social and Governance (ESG) strategy and performance, this Sustainability Report outlines our commitments (**ACT** - **A**batement, **C**are, **T**rust) and provides proof of our actions to create positive and sustainable impacts for climate, health and people. We believe everyone has a responsibility to contribute to a more sustainable future and that, collectively, we can achieve greater results. With our renowned innovation capacity, expansive portfolio of cutting-edge technologies and exceptional employee commitment, we are uniquely placed to rise to the challenge and contribute to building a better future for us all.

**Benoît Potier**, Air Liquide Chairman  
and Chief Executive Officer

# Conversation with *Fabienne Lecorvaisier*

Executive Vice President  
and member of Executive Committee,  
in charge of Sustainable Development,  
Public and International Affairs,  
the supervision of Societal Programs  
and General Secretariat

**You were named Executive Vice President supervising Sustainable Development in 2021. In this capacity, how do you envision the Group's sustainability strategy?**

Our sustainability strategy is more than a stated ambition. It is a commitment to our employees and customers, as well as to the environment and society. Our strategy relies on a robust action plan guided by the ACT framework that we introduced in March 2021 (see pages 6-9). We know where we are today and where we want to go, and this clear understanding of how we will honor our commitments distinguishes us as a leader. We were the first in the industry to announce a goal of achieving carbon neutrality by 2050, and we are the only ones to have published a detailed trajectory that outlines how we will get there. For us, sustainability does not have to come at the detriment of business. Our sustainable development objectives and our business targets are closely integrated and considered as complementary aspects of the same growth and performance scenario.



**Can you tell us about the progress made over the past year with regards to your sustainability agenda?**

We have accomplished quite a lot since March 2021. We are finalizing renewable energy procurement contracts around the world and we have signed several emblematic low-carbon projects with our customers. We are continuously expanding our unique Value-Based Healthcare approach. We are engaging with our employees, customers, suppliers, shareholders and local communities to create a safer, more collaborative and inclusive work environment.

While our progress in the last year has been significant, our sustainability agenda remains a long-term ambition. We have identified goals that we will build on over the coming decades and have implemented detailed KPIs to ensure that we remain on the right path. We make an impact whenever possible, which involves working closely with our customers to anticipate their needs and collaborate on solutions, and leveraging our expertise and international leadership – for example, using our knowledge in the hydrogen value chain to promote hydrogen as a cornerstone of the energy transition.

**“I am very confident we will turn the challenges in front of us into numerous opportunities, for our company as well as for society as a whole.”**



**What is your primary objective for the year to come? How do you see the future?**

In switching from CFO to this role, I moved from a world of normalized processes and common definitions to a landscape where standards and expectations are evolving for the better. Continuing to define an organization that will help us achieve our objectives – structuring our processes, establishing our reporting frameworks – is my main source of motivation for 2022.

Our momentum is one of many reasons I feel optimistic about the years to come. Things have changed rapidly over the past two years, with global health and geopolitical crises acting as accelerators. The demand for sustainable solutions is accelerating, and we have the relevant technologies, as well as commitment and support from our employees and stakeholders. I am very confident we will turn the challenges in front of us into numerous opportunities, for our company as well as for society as a whole.

# An ambitious and sustainable strategy



An Air Liquide employee at our biomethane production site in Cestas, France

**Guided by our commitment to sustainability, Air Liquide is performing steadily in the present and preparing for the future.**

In 2021, we enhanced our commitment to act for a sustainable future with new sustainable development objectives. Our objectives are ambitious, going beyond climate to reflect our global approach to corporate responsibility. Today, we are taking action to make a meaningful difference. We are working to build a low-carbon society, to improve our impact on patient care and quality of life and to be a trusted partner for all our stakeholders.

Aligned with the Sustainable Development Goals established by the United Nations and supported by our deeply resilient and diversified business model, we work to build a sustainable future for our customers, patients, employees and society as a whole.

#### **Acting for a low-carbon society**

**We are committed to carbon neutrality by 2050**, in accordance with international efforts to limit the impacts of climate change as outlined in the Paris Agreement. A detailed plan of our emissions reduction trajectory accompanies this commitment: **starting to decrease our emissions in absolute value around 2025, and reducing them by -33% by 2035 versus our 2020 baseline**. Our CO<sub>2</sub> emission performance is now weighted at the same level of significance as our economic performance, with entities around the world held accountable to allotted emission limits.



We will continue to massively scale up our low-carbon and renewable electricity sourcing, optimize our supply chain, improve the efficiency of production units and implement innovative carbon capture technology. We also participate in the decarbonization efforts of our industrial customers, working with them to develop cleaner solutions and collaborating on major decarbonization projects.

An integral component of our strategy involves the acceleration of hydrogen production and use worldwide as a competitive, low-carbon solution. Eight billion euros in investment are earmarked for the full hydrogen value chain over the next 10 years, including electrolysis, carbon capture and storage, and the supply chain. We expect our hydrogen revenues to grow from 2 billion euros in 2020 to 6 billion euros by 2035 – at least tripling in size in less than 15 years – an increase that proves hydrogen's essential contribution to our growth and to our accomplishment of our sustainability objectives.



### Acting for health

Air Liquide's sustainability commitments go beyond what we plan to do for the environment. The needs of society matter to us, and we recognize the role we can play in transforming healthcare and bringing enhanced care to the millions of patients we serve. As a major supplier of medical oxygen and home healthcare services, we are shaping the future of healthcare.

As the first in the industry to give key performance indicators for sustainability focused initiatives within our healthcare activities, we focus on **two main objectives**.

**In mature economies, our goal is to increase the quality of care for patients and contribute to the sustainability of healthcare models.** To accomplish this, we leverage our proximity and understanding of patients' expected outcomes, contribute to patient-focused initiatives around the world and work alongside stakeholders – partners such as patient associations, scientific communities, and medical experts. Through our efforts to increase disease awareness, enhance patient education and promote self-care, we improve outcomes that result in a better quality of life. This approach, known as Value-Based Healthcare, also guides our offer of personalized care plans to our chronic patients treated at home, where we combine digital interactions with the physical presence of our home healthcare teams.

**In low- and middle-income countries, we facilitate oxygen access to rural communities and villages.** We accomplish this through innovative methods such as our Access Oxygen program, which equips primary care facilities in these areas with medical oxygen equipment in addition to providing training. We also bring our technical and logistics expertise to partnerships with non-governmental organizations and other relevant coalitions.

### Acting as a trusted partner

With its long-term performance reliant on the quality of relationships with employees, customers, Shareholders, suppliers and local communities around the world, **Air Liquide promotes dialogue, ensures transparency and acts responsibly as a trusted partner.**

We believe our 66,400 employees are actively shaping the future and are committed to creating a safe, inclusive and engaging environment where each individual can thrive. In addition to clear objectives for increasing the number of women among managers and professionals (35% by 2025), we are committed to offering a common basis of care coverage that includes life insurance, health insurance and 14 weeks minimum of paid maternity leave for all employees worldwide by 2025.



**“Our main focus today is aligning our organization to ensure that our strategy can be successfully deployed and our targets fully met.”**

Ashutosh Misra, Air Liquide Group  
Vice President of Sustainable Development

## Our approach to water management and biodiversity

Acting for a sustainable world also means preserving our resources. At Air Liquide, we work continuously to improve our approach to the environment, from analyzing how we protect natural resources to expanding assessments of risks and opportunities.

### — Water management

Air Liquide depends on water for its activities, using it in cooling towers and heat exchangers in the production of air gases or as raw material for hydrogen production. We also count more than 35 years of experience in the water treatment sector. As such, we have successfully implemented initiatives to improve data collection and better guide water management at our production sites. In 2022, we are taking this commitment a step further with the deployment of **two water objectives**: implementing, in high water use operations in high water stress areas, a documented water management plan that addresses water withdrawal and usage risk; and implementing, for all operations, a global standard at the Group level that goes beyond existing processes and procedures that ensure discharged water quality meets or exceeds the applicable local criteria.

### — Biodiversity

In response to the global threats facing biodiversity, and to reflect our sustainability mindset, we have launched our first assessment of the Group's impact and dependence on biodiversity. Scheduled to be completed in 2022, we envision a **biodiversity framework** that covers the entire value chain – from resource management to product life cycle analysis – that is included in all site assessments.



# 3 pillars of our engagement



Acting for  
α **LOW-CARBON  
SOCIETY**

To decarbonize our  
assets, targeting carbon  
neutrality by 2050

Decarbonizing **our  
operations** by implementing  
state-of-the-art  
technologies

Deploying  
**low-carbon solutions** with  
and for our customers

Accelerating  
**hydrogen development**  
for society



Acting for  
**HEALTH**

Improve the quality of life  
of patients and help  
transform healthcare to  
better support them

Promoting **customized  
care pathways**  
through personal support  
and digital tools, in mature  
economies

Improving **access  
to medical oxygen,**  
in low- and middle-income  
countries



Acting as  
α **TRUSTED  
PARTNER**

With and for  
our stakeholders

Creating a **safer,  
more collaborative  
and inclusive work  
environment**

Building a best-in-class  
governance to create a  
**close relationship** with  
Shareholders



P I L L A R # 1

# Acting for a *low-carbon* society

Our ambition: to play a  
transformative role in the  
transition to a low-carbon society.





## O U R V A L U E P R O P O S I T I O N

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We are committed to reducing our carbon footprint and helping our industrial customers navigate the energy transition.

F O R

*Air Liquide*

We are on the path to carbon neutrality by 2050 with two major intermediate steps: a decrease in our CO<sub>2</sub> emissions in absolute value starting around 2025, followed by a 33% reduction of our CO<sub>2</sub> emissions by 2035 compared to 2020. To get there, we are acting on three levers. We are procuring large volumes of renewable electricity, we are increasing energy efficiency by expanding smart technologies across our operations and we are decarbonizing our own assets through a range of innovations that includes carbon capture and new production processes such as electrolysers. We are committed to reducing emissions across our entire value chain. As a responsible company integral to building a sustainable future, we are proud to lead by example.

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F O R O U R

*Customers*

We help reinvent manufacturing for our customers in hard-to-abate industrial sectors, accelerating emissions reduction by developing cleaner, more sustainable solutions for their industries. Drawing on our expertise and long-standing relationships, we work closely with customers to understand their needs and to co-develop innovative technologies and processes that are instrumental to achieving their decarbonization goals.

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F O R

*Society*

We share the responsibility of driving the energy transition, with a mission to offer a range of low-carbon alternatives with hydrogen playing a key role. The benefits of renewable and low-carbon hydrogen are numerous, and we are investing in technologies to produce them at an industrial scale for industrial applications and mobility. By leveraging our assets, partnerships and expertise, we are contributing to a low-carbon society and making a meaningful difference.

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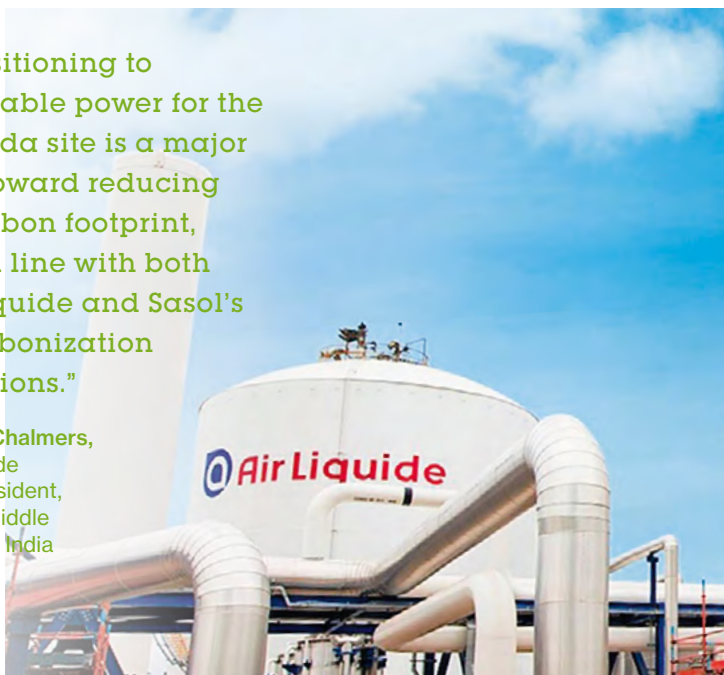


# Showcasing our contributions to a *low-carbon society*

From lessening the impact of our own activities to accompanying customers in their commitments, our climate actions span the globe.

“Transitioning to renewable power for the Secunda site is a major step toward reducing its carbon footprint, one in line with both Air Liquide and Sasol’s decarbonization ambitions.”

Ronnie Chalmers,  
Air Liquide  
Vice President,  
Africa, Middle  
East and India



## 01 — Reducing the CO<sub>2</sub> footprint of the world’s largest oxygen production site

Secunda, South Africa

Following the acquisition of Sasol’s 16 air separation units (ASUs) at the world’s largest oxygen production site in Secunda, South Africa, we have set an ambitious decarbonization plan in motion, with the objective to reduce CO<sub>2</sub> emissions by 30-40% in the next 10 years. We are bringing our expertise in implementing highly mastered operational practices, state-of-the-art technologies, modernization investments and digital capabilities to optimize the operation of the ASUs and their energy consumption. In addition, Air Liquide and Sasol are finalizing the joint procurement process for 600 MW of renewable energy, with the first deliveries targeted as early as 2023.

## 02 — Increasing renewable energy for production assets

Moerdijk, Netherlands

Our first long-term Power Purchase Agreement in the Netherlands will supply wind-generated electricity to several Air Liquide industrial and medical gas production sites. Up to 750,000 tonnes of CO<sub>2</sub> emissions will be avoided over the 15-year contract, with the power of the world’s largest offshore wind farm located 18-36 km off the Dutch coast.





**03 — Fueling China's clean mobility revolution**

Beijing, China

In July 2021, Air Liquide supplied and installed eight hydrogen dispensers for the new Daxing Hydrogen Station. At 4.8 tonnes per day, the station has the largest refueling capacity in the world, refueling 600 heavy- and light-duty hydrogen fuel cell vehicles – cargo vans, garbage trucks and buses – per day. The Daxing station, which is part of the Beijing International Hydrogen Energy Demonstration Zone, encapsulates the sustainable mobility momentum in China. Air Liquide contributes to decarbonizing mobility by accelerating the development of local low-carbon hydrogen production.

“We are thrilled to have the support of the European Commission's Innovation Fund. Private and public sector partnerships enable large-scale industrial projects like Kairos@C that help make the energy transition a reality.”

Frédéric Despréaux,  
Air Liquide Vice President,  
Northern Europe  
& CIS countries



**04 — Bringing innovative cryogenic expertise and technology to maritime applications**

Sardinia, Italy

Air Liquide's innovative Turbo-Brayton cryogenic solution has been chosen for a new liquefied natural gas storage depot in Sardinia. The Turbo-Brayton reliquefaction technology provides a reliable, energy-efficient 100% oil-free operation. With a capacity of 9,000 m<sup>3</sup>, the depot will supply the natural gas needed to produce energy for industry – fueling trucks and ships and connecting to the island network. Maintaining a temperature of -160°C, this solution avoids evaporation and further reduces the environmental impact of natural gas.

**05 — Building the world's largest cross-border Carbon Capture and Storage value chain**

Antwerp, Belgium

Through Kairos@C, our joint project with BASF, we will implement carbon management solutions to significantly reduce CO<sub>2</sub> emissions at the port of Antwerp's industrial basin. As the first project to combine carbon capture, liquefaction, transportation and storage on a large scale, Kairos@C will include innovative solutions such as Air Liquide's Cryocap™ carbon capture technology. Avoiding 14.2 million tonnes of CO<sub>2</sub> within the first 10 years of operation, Kairos@C will be connected to a larger shared CO<sub>2</sub> transport and export infrastructure built under the “Antwerp@C” consortium, of which Air Liquide is a founding member.







**06 — Transforming steel production through clean technologies**

Dunkirk, France

Through a Memorandum of Understanding with ArcelorMittal, Air Liquide is looking not only to accelerate the decarbonization of steel production, but also to create a hydrogen ecosystem in one of France's major industrial basins. We will supply low-carbon hydrogen for a variety of industrial applications, leveraging our unique expertise that spans the hydrogen value chain. The implementation of low-carbon hydrogen and the installation of carbon capture technology will reduce CO<sub>2</sub> emissions from ArcelorMittal's steel-making facilities in Dunkirk by 2.85 million tonnes by 2030.

**07 — Developing the world's first low-carbon hydrogen network**

Normandy, France

Along with industrial partners, Air Liquide is decarbonizing operations in Normandy, a major industrial hub in France. In collaboration with TotalEnergies, we will take over and operate its hydrogen production unit, which will be optimized, decarbonized and connected to the existing low-carbon hydrogen network. We will implement large-scale carbon capture and liquefaction technologies, initiatives that will together reduce the unit's emissions by 650,000 tonnes of CO<sub>2</sub> per year by 2030.

**08 — Financing our Sustainability Projects**

In May 2021, Air Liquide successfully launched its first green bond issue, by raising 500 million euros (10-year maturity) which will be dedicated to financing and refinancing the development of sustainable projects, particularly in hydrogen, biogas and oxygen. This operation is in line with the "Sustainable Financing Framework" published on May 17, 2021 and validated by a trusted third-party. The success of this inaugural green bond issuance illustrates the investors' confidence in our ability to implement projects that will contribute to building a sustainable future. We are more than ever committed to putting financial and extra-financial performance at the heart of our strategy.

"Our goal is to support the decarbonization of industry. The Normand'Hy project demonstrates Air Liquide's ability and overall global approach to providing effective solutions to an entire ecosystem."

Matthieu Giard,  
Air Liquide Vice President  
and Member of the Executive  
Committee, supervising Hydrogen  
activities and the Industrial  
Merchant World Business Line







## Air Liquide's CO<sub>2</sub> emissions

**15.5**  
Mt CO<sub>2</sub><sup>(1)</sup>

Scope 1 – direct emissions generated by Air Liquide operations

**20.8**  
Mt CO<sub>2</sub><sup>(1)</sup>

Scope 2 – indirect emissions related to the production of electricity or steam purchased by the Group

**22.2**  
Mt CO<sub>2</sub>

Scope 3 – other indirect emissions related to the life cycle of products purchased and sold by Air Liquide

## Avoided emissions

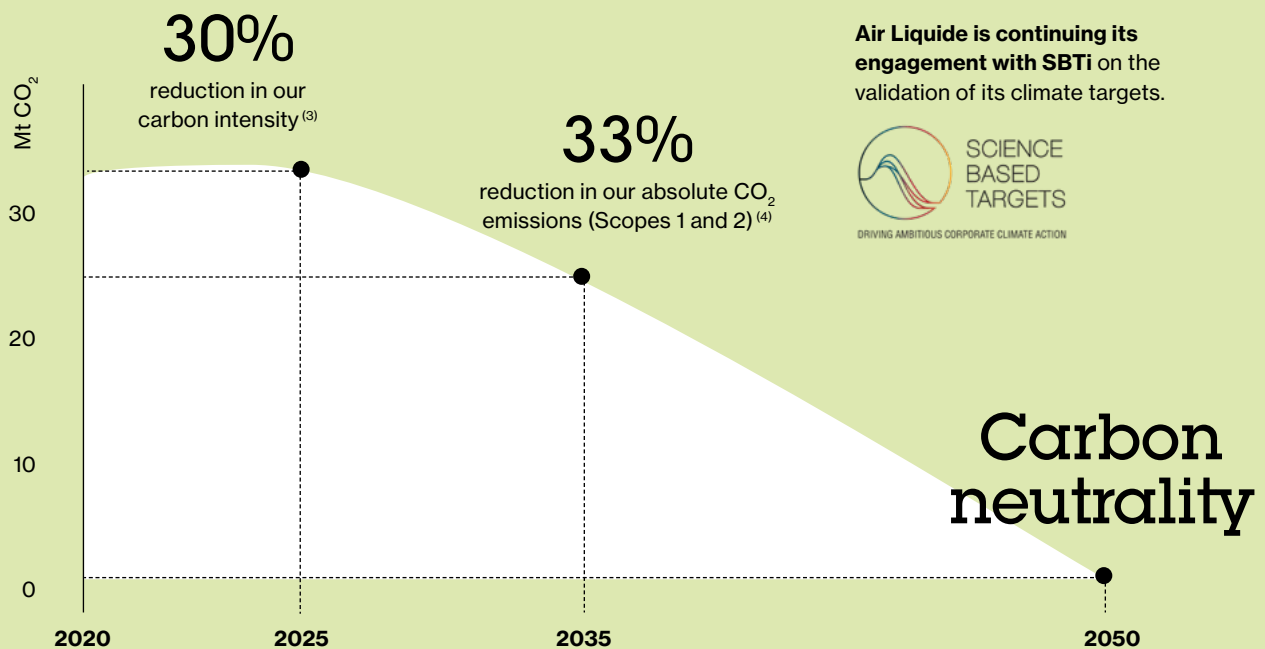
**Avoided emissions are emissions reductions** achieved by activities, products or services that emit lower volumes of greenhouse gases than would have been emitted in a reference scenario.

**15.1**  
Mt CO<sub>2</sub>

Avoided emissions through efficiencies in our assets and through Air Liquide's applications at customers' sites

**79.3**  
Mt CO<sub>2</sub>

Avoided emissions including the application of hydrogen in the production of ultra-low sulfur diesel<sup>(2)</sup>



**3 GW**<sup>(5)</sup>

of **Electrolyzer capacity** by 2030

**~€8bn**

Invested in the **hydrogen supply chain** by 2035

(1) Million tonnes of CO<sub>2</sub>-equivalent


(2) This application avoids carbon black emissions, which can contribute to global warming

(3) Versus 2015, in kg CO<sub>2</sub>-equivalent/euro EBITDA

(4) Versus 2020

(5) Gigawatts





P I L L A R # 2

# Acting for *health*

Our ambition: to continuously contribute to the improvement of care pathways and quality of life of patients.



O U R V A L U E P R O P O S I T I O N

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As a major player in the healthcare sector,  
Air Liquide is engaged alongside patients,  
healthcare professionals and hospitals.

F O R

*Patients*

Patient-centered healthcare is the cornerstone of our value proposition. With more than 30 years of experience in healthcare – particularly in home healthcare – we put our patients at the center of what we do. This is fundamental to our high standard of patient care and better quality of life for patients with chronic diseases. We provide personalized care plans, combining support from our teams at the patient's side and digital tools to collect and analyze patients' clinical and behavioral data while upholding the highest standards of data privacy.

F O R

*Society*

Beyond our expertise as a supplier of medical gas and provider of home healthcare services, we strive to build an efficient and virtuous healthcare system that creates value for all. We focus on “what matters most,” partnering with healthcare providers, associations and institutions to improve outcomes through our Value-Based Healthcare approach which increases awareness and promotes self-care. With this priority in mind, we accompany the evolution of healthcare, and develop solutions that address major public health needs to benefit the entire healthcare ecosystem.

More recently, the exceptional mobilization of Air Liquide teams during the Covid-19 crisis confirmed the vital role we play in healthcare.

F O R

*Communities*

We are committed to reducing the oxygen deficit in low- and middle-income countries, where the rate of medical oxygen supply is estimated to be only 10% of the need. In addition to supplying oxygen to support local communities, we are establishing a holistic offer that includes providing and maintaining equipment and training local healthcare providers. In countries where we do not have a presence, we partner with local stakeholders, providing technical and non-technical support to expand access to oxygen.



# Showcasing our contributions to *health*

Air Liquide acts to transform healthcare, working alongside patients, healthcare providers, hospitals and communities to make the system virtuous and efficient for all.



“We are proud of our home healthcare teams, who, in 2021, developed patient-focused initiatives, and also provided innovative personalized care plans to help patients better manage their diseases.”

**Diana Schillag,**  
Member of Air Liquide Executive Committee, Vice President in charge of Healthcare activities in Europe, and the Healthcare World Business Line



## 01 — Partnering on patient-centered initiatives

Global, Germany

Air Liquide's Healthcare teams work daily with patient communities to increase awareness of pathologies and treatments, share knowledge with patients and caregivers, promote self-management and ultimately improve patients' autonomy and quality of life. In 2021, Air Liquide developed 41 patient-focused initiatives with its partners globally, including patient associations, healthcare institutions (such as hospitals), healthcare professionals, scientific communities and universities.

In Germany, one such patient-focused initiative works to evaluate the improvement of quality of life of children with type 1 diabetes. Our Home Healthcare entity, VitalAire, has developed a clinical study of the closed-loop system (combining an insulin pump and a continuous glucose monitoring device) for type 1 diabetes patients in partnership with the Center of Excellence "Auf der Bult", a specialized diabetes center for children in Hannover. The combination of technology and service helps to keep blood sugar levels at an acceptable level while reducing hypoglycemia and hyperglycemia events and also improving the quality of life of children with diabetes.



## 02 — Improving care for patients through personalized care pathways

Global

Air Liquide actively supports the evolution of the healthcare ecosystem, improving the care pathway and its benefit for patients through personalized care. Personalized care is based on a deep understanding of patients' respective personal clinical and lifestyle conditions and expected outcomes. We customize care pathways through personal support from our teams (technicians, nurses) and digital tools, in order to improve the adherence to treatment and quality of life of patients.

## 03 — Enhancing quality of life for sleep apnea patients through the MIntA program

Spain

Air Liquide teams in Spain have designed a patient-focused approach that improves outcomes for sleep apnea patients. Continuous positive airway pressure (CPAP), the first-line treatment for this condition, is highly effective with daily use, but requires patient commitment and comprehension. The MIntA initiative is focused on education and training, complemented by a personal interview in which a connection is established with the patient to weigh risks and benefits and agree on goals. In a randomized trial published in 2021, MIntA was found to increase compliance with CPAP therapy after 90 days of treatment.

## 04 — Supplying medical oxygen to communities through the Access Oxygen program

West Africa

Nearly one in two people in the world lack access to medical oxygen, with serious health consequences. With its local presence and expertise, Air Liquide works to fill this gap through Access Oxygen, a program that makes oxygen more accessible in low- and middle-income countries. A proven model since its pilot in Senegal in 2016, Access Oxygen is based on an O<sub>2</sub> House that provides mobile oxygen kits, as well as training to small health posts.







“By building expertise and empowering nurses on the use and application of oxygen therapy, Air Liquide builds capacity in their immediate environment and contributes to South Africa’s transformation plan, empowering young Black women.”

Lynda Toussaint, Unjani Clinics  
Chief Executive Officer

**05 — Building oxygen therapy expertise in South Africa**

South Africa

In 2021, Air Liquide partnered with Unjani Clinics, a network of 92 Black women-owned and operated primary care health centers, to expand access to oxygen in rural and low-income communities across South Africa. We will supply medical oxygen and provide training on the use of oxygen therapy and associated equipment for nursing personnel. An estimated half a million people in peri-urban and rural communities stand to benefit from this partnership.

**06 — Supporting India’s efforts to fight Covid-19**

India

In the context of an unprecedented increase in the need of oxygen in India linked to Covid-19, Air Liquide teams were fully mobilized to fight the pandemic and support the country. Locally, our production of medical oxygen quadrupled, increasing to its maximum capacity, and was dedicated to medical usage. Relying on its international network, Air Liquide collaborated with the French Government to import liquid oxygen to India, delivering more than 200 tonnes of liquid oxygen in coordination with Indian health authorities. Five large cryogenic mobile containers were flown from Europe to Qatar where they were filled with oxygen before transport by sea to hospitals in India; once used, they were returned to Qatar by plane for new rotations.





**1.8M**

at-home patients

**1,032,000**

people living in low- and middle-income countries benefited from easier access to oxygen in 2021

**>9,000 t<sup>(1)</sup>**

of liquid oxygen exported to support Covid-19 patients around the world in 2021

**38%**

of home healthcare patients benefit from personalized care plans

**15K**

hospitals served

To promote Value-Based Healthcare in 2021, we developed

**41**

patient-focused initiatives

through

**110**

partnerships with patient associations, healthcare professionals and institutions globally

(1) Tonnes



P I L L A R # 3

# Acting as a trusted *partner*

Our ambition: to leverage trust as the foundation of an empowered employee community and a best-in-class governance.

## OUR VALUE PROPOSITION

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The foundation of our day-to-day business is built on relationships of trust: with our employees, customers, suppliers, shareholders and local communities.

### FOR OUR

## Employees

Our employees are key to our success. We ensure their well-being beyond the workplace by providing our global workforce with core benefits coverage. We ensure safety at work, minimizing risks across our ecosystem. We empower every employee to unleash their full potential through opportunities for training and career development. And we celebrate diversity, promoting an inclusive culture that thrives through collaboration.

### FOR OUR

## Stakeholders

We believe the key to trust is grounded in integrity, transparency and accountability. Our governance is based on a continuous and open dialogue with our loyal individual Shareholders. As the first CAC 40 company to create a Shareholder Communication Committee, we have a team dedicated to our institutional investors.

All our activities are guided by an independent, international, gender-balanced Board of Directors.

We maintain long-term relationships with our customers and suppliers, with whom we work closely to continuously raise standards, particularly in the area of sustainable development.

### FOR

## Society

Air Liquide is committed to making a positive impact on the communities in which we operate. We support local social initiatives in fields like childhood education, entrepreneurship, healthcare and safety, and work to expand access to energy and to a clean environment. We empower our employees to engage in their local communities to help make the world a better place. Through the Air Liquide Foundation, we also support scientific respiratory research and professional integration, building on the Group's expertise and regional presence to transform lives.



# Showcasing our contributions as a *trusted partner*

2021 marked yet another year of strengthening our relations with our stakeholders, empowering our employees and contributing to society.



## **01 — Improving the employee experience with My Voice, our annual Employee Engagement Survey** Global

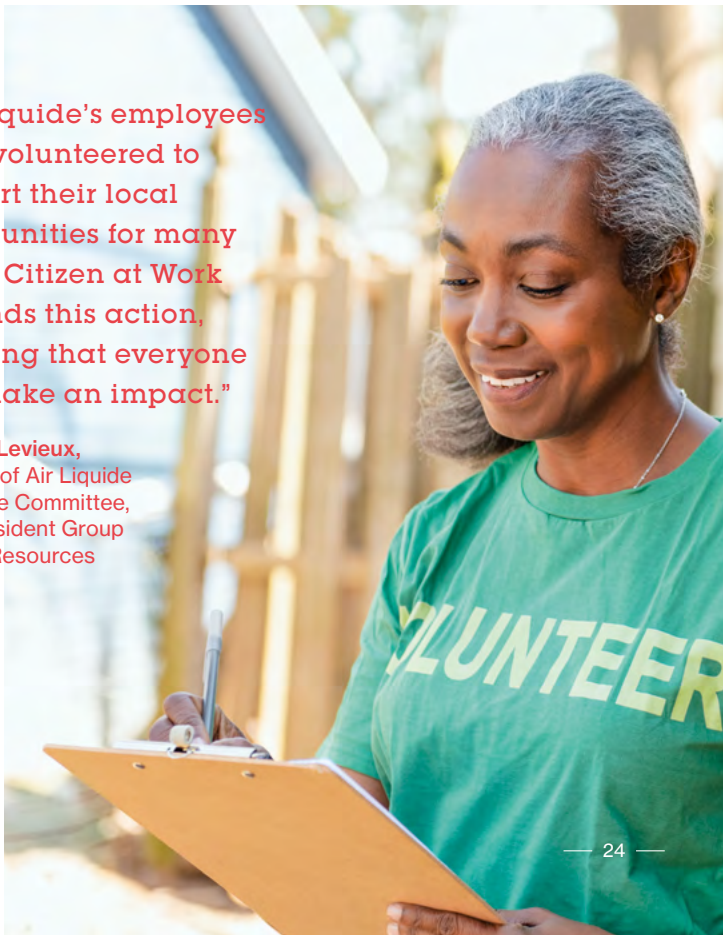
Each year, every one of our employees is invited to respond to the global My Voice Employee Engagement Survey, which gathers insightful feedback to enrich our employees' experience. Listening to understand and acting to improve are key to enhancing our workplace environment, keeping employee satisfaction – the driver of our collective performance – as high as can be. In 2021, 83% of our employees responded to the My Voice survey.

## **02 — Empowering our employees to impact their local communities through Citizen at Work** Global

For many years and all around the world, Air Liquide employees under affiliate management sponsorship or through the Foundation have been volunteering during or outside working hours to support their local communities. Strongly believing in the potential of each and every one of our 66,400 employees, we have created a new program to empower our workforce and build up our collective impact. Citizen at Work, launching at the start of 2022, provides guidelines for affiliates to deploy local volunteering initiatives for all employees. Each project identified in this new initiative aligns with our sustainability objectives, with missions that include professional development, child education, environmental protection, healthcare and social inclusion.

“Air Liquide’s employees have volunteered to support their local communities for many years. Citizen at Work expands this action, ensuring that everyone can make an impact.”

Armelle Leveux,  
Member of Air Liquide  
Executive Committee,  
Vice President Group  
Human Resources





**03 — Funding scientific research and emergency aid projects through Air Liquide Foundation's dedicated Covid-19 initiative**

France

In response to the continued health and social emergency of the pandemic, the Air Liquide Foundation created the Covid-19 Initiative, devoting more than 2 million euros to fund scientific research with partner organizations through 2022. The Foundation has supported scientific research into the impact of the Sars-CoV-2 coronavirus on respiratory systems and increased financial aid to partner organizations that work directly with populations in need.

At a special event in September 2021, Air Liquide brought together six Covid-19 research teams supported by the Foundation to present their work and exchange ideas. In addition to encouraging collaboration, the resulting discussions helped the Foundation identify the evolving needs of the medical research teams they support.

**04 — Preparing the future of the Group with a new governance structure**

Global

The Group's Board of Directors has unanimously agreed to implement a new governance structure, starting June 1, 2022, that separates the roles of Chairman of the Board of Directors and Chief Executive Officer. The Appointments and Governance Committee prepared Benoît Potier's succession plan for more than two years, arriving at a plan that combines continuity with renewal. Benoît Potier will serve another term as Chairman of the Board of Directors<sup>(1)</sup>, while François Jackow, who joined the Group in 1993, will be appointed Chief Executive Officer. This new role allows François Jackow to devote full attention to his operational role, especially the implementation of the Group's new strategic plan, ADVANCE, announced in March 2022.



(1) Subject to Shareholders' vote on May 4, 2022.





**05 — Amplifying the actions of Air Liquide's Sustainability Ambassadors**

Global

Air Liquide's "Sustainability Ambassadors," a volunteering network created by employees to support sustainable actions at all levels of the Group, experienced remarkable growth in 2021 following the launch of the Group's new sustainability objectives. Sustainability Ambassadors set up initiatives, raise awareness among their coworkers, and share best practices on topics ranging from recycling to zero-waste campaigns and sustainable mobility. With a dedicated intranet community launched in 2021, the actions of these 450 Ambassadors are shared with the entire organization.

**06 — Serving our Shareholders**

Global

For more than a century, Air Liquide has involved its Shareholders in its development, prioritizing open dialogue, dedicated services and increased long-term investment value. Today, 33% of our shares are held by individual Shareholders, a record proportion among French companies. The Shareholder Communication Committee has represented our shareholding community since 1987, working year-round on communication initiatives that serve more than half a million individual Shareholders. To strengthen our relationship with young Shareholders, we launched a campaign in 2021 focused on digital communication and social media, achieving increased engagement.

**07 — Public Affairs Charter**

Global

In 2021, Air Liquide published its Public Affairs Charter governing the Group's interactions with public authorities at the national, European and international level. This charter provides a framework for the Group to stay ahead of risks related to regulatory changes, identify opportunities for growth, and participate in the public debate on sectors in which Air Liquide has a legitimate interest. It specifies that the Group will work with stakeholders in a constructive and transparent manner, following ethical rules and respecting political neutrality.

"Part of the role of the Shareholder Communication Committee is to democratize shareholding, making it accessible to younger people. Air Liquide is doing real work in this area."

Simmoni de W., Shareholder since 2017 and member of the Shareholder Communication Committee from 2017-2020





zero

accident ambition,  
with safety our top  
priority

50%

of our Board are  
women and 92%  
are independent  
members

31%

of women among  
Managers and  
Professionals within the  
employee population

**Objective: 35% by 2025**

24%

of women  
in Executive  
positions

**Objective:  
25% by 2025**

100%

of our global workforce will have  
a common basis of care  
coverage by 2025

**In 2021: 34% coverage**

>0.5M

individual  
Shareholders hold  
**33%** of Air Liquide's  
share capital

17,000

employees have access to  
volunteering opportunities  
**Objective: 100% of  
our employees by 2025**

Since its creation, the Air Liquide Foundation has supported

68

scientific  
projects

470

community  
development projects

in 52

countries



# Reporting for *Stakeholders*

Sharing our 2021 extra-financial  
performance and our environmental  
and societal reporting.



[Click here](#) to download  
the reporting tables.

## ACT FOR A SUSTAINABLE FUTURE

|  |  | 2021 results      |
|--|--|-------------------|
| <b>ACT FOR</b><br>a low-carbon society                           | → by 2035, a -33% reduction in its Scopes 1 and 2 CO <sub>2</sub> emissions vs. 2020   | < +1%             |
|  | → by 2025, a -30% reduction in carbon intensity compared to 2015   | -24%              |
| <b>ACT FOR</b><br>health   | → improve the quality of life of patients with chronic diseases living at home in mature economies by deploying personalized care plans                        | 38%               |
|  | → facilitate populations with access to medical oxygen in low- and middle-income countries   | 1,032,000 persons |
| <b>ACT AS A TRUSTED PARTNER</b><br>with and for our stakeholders | → 35% women managers and professionals by 2025   | 31%               |
|  | → 100% of our employees to have common basis of care coverage, including life insurance, health insurance and 14 weeks minimum of paid maternity leave by 2025 | 34%               |

## SAFETY INDICATORS

### Safety indicators for the entire group

|   | 2012 | 2013 | 2014 | 2015 | 2016 | 2017  | 2018 <sup>(f)</sup> | 2019  | 2020  | 2021  |
|---|------|------|------|------|------|-------|---------------------|-------|-------|-------|
| Number of Group employee lost-time accidents of at least one day <sup>(a)</sup>               | 149  | 151  | 144  | 152  | 137  | 198   | 161                 | 158   | 108   | 138*  |
| Accident frequency of Group employees <sup>(b)</sup>  | 1.7  | 1.6  | 1.6  | 1.6  | 1.4  | 1.6   | 1.3                 | 1.2   | 0.9   | 1.1*  |
| Accident severity rate <sup>(c)</sup>   | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1  | 0.17                | <0.1  | 0.12  | <0.1  |
| Number of accidents of subcontractors and temporary workers <sup>(d) (e)</sup>                | 142  | 110  | 92   | 94   | 91   | 90    | 93                  | 109   | 67    | 83*   |
| Frequency of accidents of subcontractors and temporary workers                                | -    | 2.2  | 2.3  | 2.2  | 2.0  | 2.1   | 2.2                 | 2.4   | 1.4   | 1.6   |
| Frequency rate of serious avoidable accidents involving injuries (in millions of km traveled) | -    | -    | -    | -    | -    | 0.013 | 0.030               | 0.022 | 0.019 | 0.021 |

(a) Fatal work accidents since 2015: none in 2021, two in 2020, none in 2019, three in 2018, none in 2017, one in 2016, none in 2015.

(b) Number of accidents with at least one day's absence from work per million hours worked, involving Group employees. Accidents defined in accordance with the International Labour Office recommendation. Hours worked are defined according to local labor regulations.

(c) Average number of days off work per thousand hours worked. Accidents defined according to the International Labour Office recommendation.

(d) Employees working under a contract with Air Liquide, on a Group site, or on a customer site, or as drivers of a delivery vehicle.

(e) Fatal work accidents since 2015: four in 2021, one in 2020, two in 2019, five in 2018, none in 2017, one road accident in 2016, one road accident in 2015.

(f) With Airgas, the data for the previous years concerns Air Liquide exclusively.

\* Indicator verified by the independent verifier.

The year 2021 was again marked by the Covid-19 pandemic. In this context of recovery of activity, and a return to the field after a year 2020 in partial containment for some regions, the lost time injury frequency rate for Air Liquide employees increased slightly to 1.1 at the end of 2021, compared to 0.9 at the end of 2020. Despite this deterioration compared to last year, the safety performance remains better than that of 2019, when the lost-time accident frequency rate for Air Liquide employees was 1.2. It is therefore necessary to continue awareness and prevention actions in order to improve safety and significantly and sustainably reduce this lost time accident frequency rate.

In 2021, the Group recorded the death of four subcontractors on industrial sites.

The Group has made and will continue to make every effort to analyze all accidents that have occurred in order to learn from them and thus prevent them from happening again.



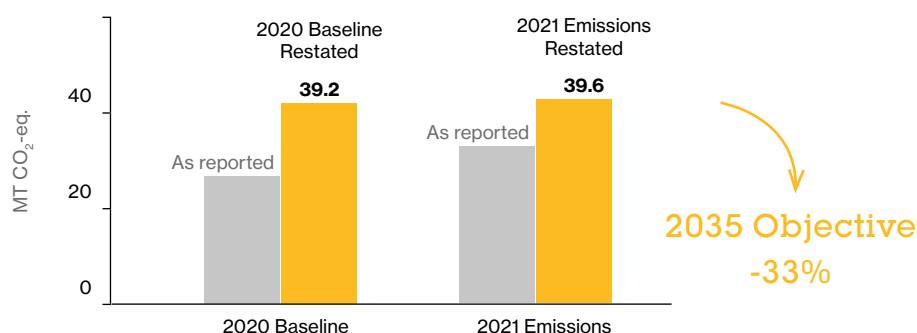
THE GROUP'S CLIMATE OBJECTIVES AND INDICATORS IN ITS ASSETS

**Objective 1: Reduce absolute emissions by -33% by 2035 vs. 2020**

|  | 2015   | 2016   | 2017   | 2018   | 2019   | 2020   | 2021          |
|--|--------|--------|--------|--------|--------|--------|---------------|
| CO <sub>2</sub> emissions, as reported (in thousands of tonnes of CO <sub>2</sub> -eq.) <sup>(a)</sup> | 29,414 | 29,363 | 30,867 | 33,058 | 33,166 | 32,529 | <b>36,364</b> |
| CO <sub>2</sub> emissions, restated (in thousands of tonnes of CO <sub>2</sub> -eq.) <sup>(b)</sup>    | -      | -      | -      | -      | -      | 39,202 | <b>39,584</b> |
| Performance: restated CO <sub>2</sub> emissions vs. 2020   | -      | -      | -      | -      | -      | -      | <b>0.97%</b>  |

(a) Emissions are reported using the "market-based" methodology and include newly acquired assets in 2021 as of their acquisition date.  
 (b) Emissions are reported using the "market-based" methodology, restated to include, from 2020 and each subsequent year, emissions for the entire year of newly acquired assets integrated in 2021. Thus, the change in these restated emissions reflects the actual change in the Group's emissions at comparable Scope.

The Group's total CO<sub>2</sub>-equivalent emissions, compared to the restated 2020 baseline, remained stable (<+1% increase), despite the strong growth in Group's activity. This reflects the strong commitment by the Group to manage its CO<sub>2</sub> trajectory and the associated actions which are under deployment.

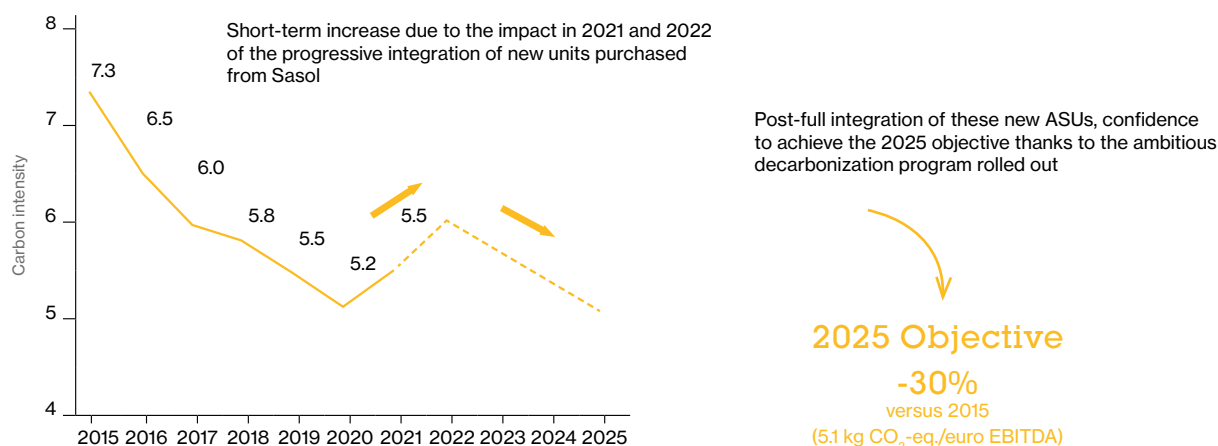


**Objective 2: Reduce carbon intensity by -30% by 2025 vs. 2015**

|  | 2015   | 2016   | 2017   | 2018   | 2019   | 2020   | 2021                     |
|--|--------|--------|--------|--------|--------|--------|--------------------------|
| CO <sub>2</sub> emissions, as reported (in thousands of tonnes of CO <sub>2</sub> -eq.) <sup>(a)</sup> | 29,414 | 29,363 | 30,867 | 33,058 | 33,166 | 32,529 | <b>36,364</b>            |
| Carbon intensity <sup>(b)</sup>  | 7.3    | 6.5    | 6.0    | 5.8    | 5.5    | 5.2    | <b>5.5<sup>(c)</sup></b> |

(a) Emissions are reported using the "market-based" methodology, including newly acquired assets in 2021 as of their acquisition date.  
 (b) In kg CO<sub>2</sub>-eq./euro of operating income recurring before depreciation and amortization at 2015 exchange rate and excluding IFRS 16 for greenhouse gas emissions Scopes 1 and 2 reported using the "market-based" methodology.  
 (c) Following the takeover of the Sasol Air Separation Units in South Africa on June 24, 2021, the CO<sub>2</sub> intensity of the Group increased in 2021 (half year impact) compared to 2020.

Following the takeover of the Sasol Air Separation Units in South Africa on June 24, 2021, the carbon intensity of the Group increased in 2021 (half year impact, as from the date of acquisition). As a result, the 2022 emissions will reflect a full year's impact, which could lead to a further increase in carbon intensity in 2022. However, given the ambitious decarbonization plan of the Group, including for the Sasol project, this does not compromise the 30% carbon intensity reduction objective to reach an intensity of 5.1 kg CO<sub>2</sub>-eq./euros (using market-based methodology) by 2025 vs. 2015 baseline.



## Drivers

|  | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021       |
|--|------|------|------|------|------|------|------------|
| Installed or decided Electrolyzer capacity <sup>(a)</sup>  | -    | -    | -    | -    | -    | -    | <b>88</b>  |
| Carbon footprint of air gases (N <sub>2</sub> , O <sub>2</sub> and Air) delivered in bulk, cylinders or On-Site products (Industrial Merchant activity) <sup>(b)</sup> | 313  | 302  | 300  | 301  | 282  | 289  | <b>269</b> |

(a) Units: MW.

(b) Units: kg CO<sub>2</sub>-eq. per tonne.

## Scopes calculation methodology

The majority of Air Liquide's Scope 1 emissions are from its hydrogen production and cogeneration units. Scope 1 emissions are the difference in carbon content between the natural gas consumed by these units and the carbon content of their products. Air Liquide also records direct emissions from the combustion of fuel in its truck fleet, as well as gas losses from its CO<sub>2</sub> and nitrous oxide production units.

Air Liquide now accounts for its Scope 2 emissions on a "market basis." In 2021 the Group improved the way it accounts for indirect emissions from electricity and steam purchases by moving from a "location-based" approach based on the average emissions intensity of the national grid to a much more precise and specific approach known as the "market-based" method, linked directly to supply contracts.

Scope 3 emissions are accounted for using several approaches that depend on the category of emissions, including Spend-based, Average-based, and Hybrid methodologies.

## Scopes 1 and 2

|   | 2017          | 2018          | 2019          | 2020          | 2021                         |
|---|---------------|---------------|---------------|---------------|------------------------------|
| Scope 1: total direct greenhouse gas emissions (GHGs) (in thousands of tonnes of CO <sub>2</sub> -eq.) <sup>(a)</sup> | 14,799        | 16,082        | 16,239        | 15,345        | <b>15,536*</b>               |
| Scope 2: total indirect GHG emissions (in thousands of tonnes of CO <sub>2</sub> ) <sup>(b)</sup>                     | 16,068        | 16,976        | 16,927        | 17,184        | <b>20,829*</b>               |
| <b>TOTAL emissions as reported (in thousands of tonnes of CO<sub>2</sub>-eq.)</b>                                     | <b>30,867</b> | <b>33,058</b> | <b>33,166</b> | <b>32,529</b> | <b>36,364<sup>(c)*</sup></b> |
| <b>TOTAL restated emissions (in thousands of tonnes of CO<sub>2</sub>-equivalent)<sup>(d)</sup></b>                   | -             | -             | -             | <b>39,202</b> | <b>39,584</b>                |

(a), (b) & (c) Actual Group emissions including assets acquired during the year as of their acquisition date.

(a) Includes carbon dioxide emissions, methane emissions and nitrous oxide emissions. Reporting taking into account a minimum of 95% of the Group's emissions. The methodology and reporting of excluded sources are subject to a continuous improvement process. Historical data have been restated to take into account minor changes in perimeter, in particular the reporting in Scope 3 emissions linked to product transport operations when these are subcontracted, and the introduction of methodologies to account for fugitive emissions from carbon dioxide and dry ice units.

(b) Total of indirect GHG emissions generated by the production of electricity and steam purchased outside the Group. Emissions are reported using the "market-based" methodology.

(c) Corresponding emissions using "location-based" methodology are 35,089 kt CO<sub>2</sub>-eq.

(d) Emissions are reported using the "market-based" methodology, restated to include from 2020 and each subsequent year, emissions of the entire year of newly acquired assets integrated after 2020.

\* Indicator verified by the independent verifier.

The Group's direct emissions (Scope 1) are almost unchanged from 15.3 million tonnes of CO<sub>2</sub>-equivalent in 2020 to 15.5 million tonnes in 2021.

The Group's indirect emissions as reported (Scope 2) increase significantly from 17.2 million tonnes of CO<sub>2</sub>-equivalent in 2020 to 20.8 million tonnes in 2021, an increase of 21%. This variation is due to the inclusion of new assets in the scope, in particular the assets acquired from Sasol and included in the CO<sub>2</sub> emissions reporting scope on June 24, 2021.

|   | Scope 1       | Scope 2 <sup>(a)</sup> |
|---|---------------|------------------------|
| Europe (in thousands of tonnes of CO <sub>2</sub> -eq.)               | 5,400         | 3,821                  |
| Americas (in thousands of tonnes of CO <sub>2</sub> -eq.)             | 7,435         | 2,743                  |
| Asia Pacific (in thousands of tonnes of CO <sub>2</sub> -eq.)         | 1,030         | 8,985                  |
| Middle-east & Africa (in thousands of tonnes of CO <sub>2</sub> -eq.) | 1,671         | 5,280                  |
| <b>TOTAL (in thousands of tonnes of CO<sub>2</sub>-eq.)</b>           | <b>15,536</b> | <b>20,829</b>          |

(a) Actual hubs emissions including assets acquired during the year as of their acquisition date.



More than 80% of the Group's direct emissions in Europe and America are attributed to cogeneration units and hydrogen production capacity. Indirect emissions are related to installed capacity in various regions and to the local power generation mix. The amount of coal-based power generation in Asia and South Africa explains the relative importance of Scope 2 emissions in these geographies, which represent more than 65% of the Group's indirect emissions.

### Scope 3

| Scope 3 categories   | 2020 (in thousands of tonnes CO <sub>2</sub> -eq.) <sup>(a)</sup> | 2021 (in thousands of tonnes CO <sub>2</sub> -eq.) |
|--|---|--|
| 1 – Purchased goods and services   | 2,836   | 3,286*   |
| 2 – Capital goods  | 461   | 523*   |
| 3 – Energy (not included Scope 1 or 2)   | 5,132   | 7,591*   |
| 4 – Upstream transportation  | 70  | 83*  |
| 6 – Business travel  | 34  | 30*  |
| 7 – Employee commuting   | 70  | 70*  |
| 9 – Downstream transportation <sup>(b)</sup>   | –   | 358 <sup>(b)</sup>                                 |
| 11 – Use of sold products  | 9,276   | 9,236*   |
| 13 – Downstream leased assets  | 1,570   | 1,070*   |
| <b>TOTAL SCOPE 3 EMISSIONS (in thousands of tonnes of CO<sub>2</sub>-equivalent)</b> | <b>19,449</b>   | <b>22,247*</b>                                     |

(a) First publication of Scope 3 in 2020. CO<sub>2</sub>-eq. stands for CO<sub>2</sub>-equivalent.

(b) These emissions were previously reported by Air Liquide in Scope 1.

\* Indicator verified by the independent verifier.

The Group's Scope 3 emissions are mainly related to the use of products sold (CO<sub>2</sub> and N<sub>2</sub>O) and energy. The Energy category significantly increased in 2021 due to the significant variation in upstream emission factors (Well-to-Tank factors from the UK government database) as well as the inclusion in the reporting scope of assets acquired during the year (in particular the assets acquired from Sasol).

## EMISSIONS FROM TRANSPORTATION

### Transportation: industrial merchant business

|  | 2017  | 2018  | 2019 | 2020 | 2021         |
|--|-------|-------|------|------|--------------|
| Kilometers traveled by all vehicles delivering gas in liquid or cylinder form (in millions of km)  | 588   | 601   | 596  | 559  | <b>593*</b>  |
| Estimate of CO <sub>2</sub> emissions generated by these vehicles in the Industrial Merchant business (in thousands of tonnes)                     | 653   | 666   | 660  | 483  | <b>572*</b>  |
| Change in distance traveled per tonne of liquid industrial gas delivered (oxygen, nitrogen, argon, carbon dioxide) <sup>(a)</sup> (truck delivery) | 100.3 | 101.7 | 98.1 | 97.6 | <b>98.3*</b> |
| Estimate of truck transportation kilometers avoided through on-site customer units (in millions of km)   | -57   | -58   | -56  | -103 | <b>-106</b>  |
| Estimate of CO <sub>2</sub> emissions avoided by these on-site customer units (in thousands of tonnes)   | -58   | -59   | -56  | -104 | <b>-107</b>  |
| Percentage of deliveries of air gases and hydrogen via pipeline or on-site   | 85%   | 85%   | 85%  | 85%  | <b>86%</b>   |

(a) In kilometers per ton delivered for the Industrial Merchant business. 2015 base of 100.

\* Indicator verified by the independent verifier.

**Transportation: healthcare business**

|  | 2017       | 2018       | 2019       | 2020       | 2021       |
|--|------------|------------|------------|------------|------------|
| <b>TRANSPORTATION: HOME HEALTHCARE BUSINESS</b>                                  |            |            |            |            |            |
| Kilometers traveled ( <i>in millions of km</i> )                                 | 184        | 181        | 187        | 173        | <b>148</b> |
| Associated CO <sub>2</sub> emissions ( <i>in thousands of tonnes</i> )           | 35         | 35         | 34         | 30         | <b>29</b>  |
| <b>TRANSPORTATION: MEDICAL GASES BUSINESS</b>                                    |            |            |            |            |            |
| Kilometers traveled ( <i>in millions of km</i> )                                 | 33         | 33         | 32         | 33         | <b>24</b>  |
| Associated CO <sub>2</sub> emissions ( <i>in thousands of tonnes</i> )           | 29         | 30         | 29         | 30         | <b>26</b>  |
| <b>TOTAL KILOMETERS TRAVELED HEALTHCARE BUSINESS (<i>in millions of km</i>)</b>  | <b>217</b> | <b>214</b> | <b>219</b> | <b>206</b> | <b>172</b> |
| <b>TOTAL ASSOCIATED CO<sub>2</sub> EMISSIONS (<i>in thousands of tonnes</i>)</b> | <b>64</b>  | <b>65</b>  | <b>63</b>  | <b>60</b>  | <b>55</b>  |

**REPORTING OF AVOIDED EMISSIONS**

|  | 2017        | 2018        | 2019        | 2020        | 2021        |
|--|-------------|-------------|-------------|-------------|-------------|
| Emissions avoided due to the optimization of our assets ( <i>millions of tonnes of CO<sub>2</sub>-eq.</i> )      | 4.6         | 4.6         | 4.6         | 3.6         | <b>3.3</b>  |
| Emissions avoided to improve our customers' energy footprint ( <i>millions of tonnes of CO<sub>2</sub>-eq.</i> ) | 11.5        | 11.0        | 12.2        | 11.2        | <b>11.8</b> |
| <b>TOTAL AVOIDED EMISSIONS (<i>millions of tonnes of CO<sub>2</sub>-eq.</i>) <sup>(a)</sup></b>                  | <b>16.1</b> | <b>15.6</b> | <b>16.8</b> | <b>14.8</b> | <b>15.1</b> |

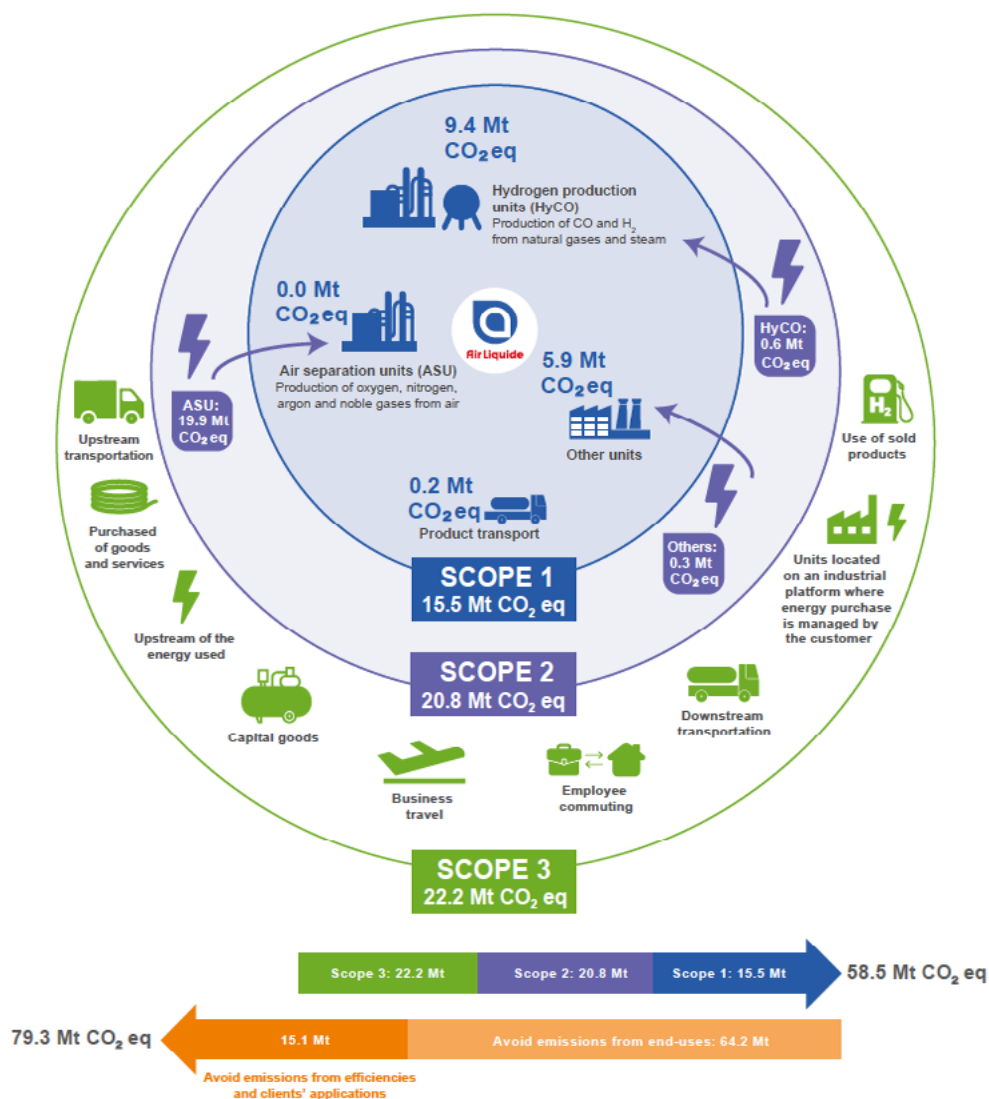
(a) These avoided emissions cover only the avoided emissions directly attributable to the optimization of Air Liquide's assets and to the use of Air Liquide's solutions by its direct customers. They do not include avoided emissions induced at the level of end-use. When these avoided emissions are included, the total reduction of CO<sub>2</sub> emissions induced by Air Liquide's actions compared to a reference scenario amounts to 79.3 Mt CO<sub>2</sub>-eq.

Emissions avoided through the optimization of our assets decreased slightly by 0.3 Mt CO<sub>2</sub>-eq. This reduction is explained by a decrease in asset load factors and thus a loss of efficiency, combined with a decrease in network emission billings.

Emissions reductions enabled by the Group to its customers increased by 0.6 Mt CO<sub>2</sub>-eq. This increase is explained by a recovery in steel production in Europe and America in 2021, leading to an increase in the supply of oxygen for oxycombustion processes.

Air Liquide's avoided emissions amount to 79.3 Mt CO<sub>2</sub>-eq., based on other methodological approaches that consider the reduction of carbon black emissions through the use of ultra-low sulfur fuels, and by attributing these avoided emissions to the hydrogen used for desulfurization in refineries.





The data presented have been rounded up to the tenth.

## ENERGY AND EFFICIENCY INDICATORS

|   | 2017    | 2018    | 2019    | 2020    | 2021                          |
|---|---------|---------|---------|---------|-------------------------------|
| Annual electricity consumption (in GWh) <sup>(a)</sup>  | 34,062  | 36,265  | 35,687  | 36,089  | <b>37,750*</b>                |
| Percentage of electricity consumed by the Group which is renewable                              | 20.0%   | 20.9%   | 20.8%   | 21.6%   | <b>16.8%</b>                  |
| Percentage of electricity consumed by the Group which is low-carbon or renewable <sup>(b)</sup> | 69.0%   | 69.6%   | 69.3%   | 69.2%   | <b>61.1%</b>                  |
| Annual thermal energy consumption (in LHV terajoules) <sup>(c)</sup>                            | 290,285 | 306,111 | 307,022 | 295,235 | <b>300,545*<sup>(d)</sup></b> |
| Change in air gas produced per energy consumption <sup>(f)</sup>                                | 101.9   | 102.2   | 101.6   | 100.5   | <b>99.9*</b>                  |
| Change in hydrogen produced per energy consumption <sup>(e)(f)</sup>                            | 100.6   | 99.8    | 100.1   | 99.9    | <b>98.0</b>                   |

(a) Includes a share of steam and compressed air purchased by the Group.

(b) The share of renewable electricity including the consumption of electricity and steam from the oxygen production units acquired from Sasol in 2021 fell by 8.1% due to the sizable share of coal in South Africa's energy mix and the site's substantial capacity.

(c) LHV: Lower Heat Value, which includes the fact that energy from water vaporizing in fuel is not recovered.

(d) Approximately 83,500 GWh LHV.

(e) Hydrogen and carbon monoxide.

(f) 2015 base of 100, efficiency can be affected by reliability, maintenance, turnaround, number of startups and ramp-ups.

\* Indicator verified by the independent verifier.

## WATER CONSUMPTION

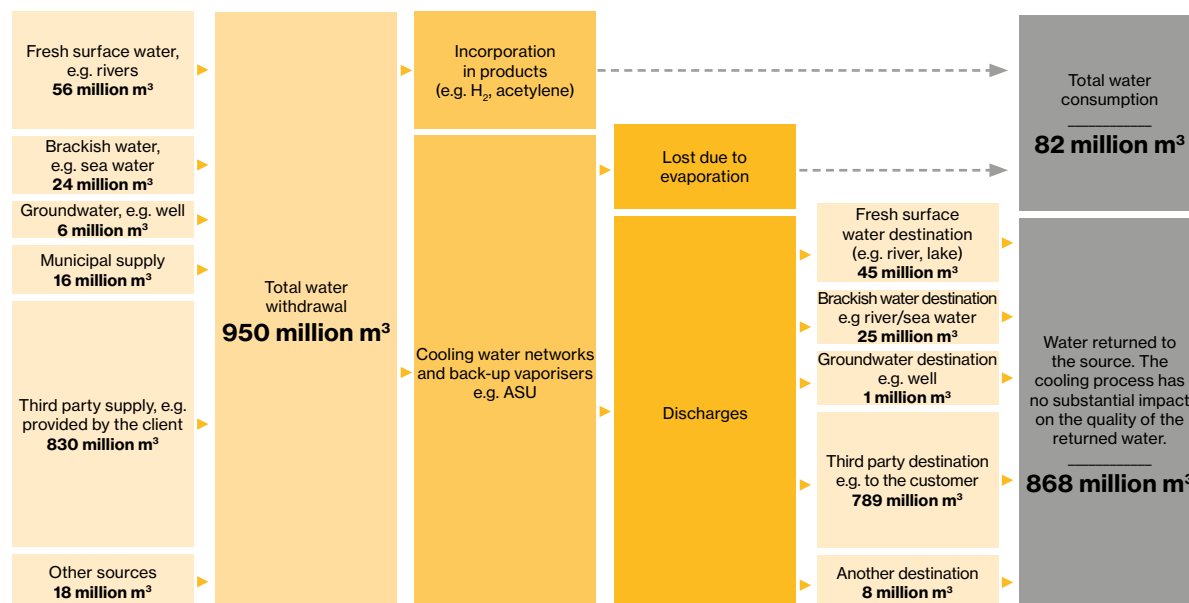
|   | 2017 | 2018 | 2019 | 2020 | 2021                      |
|---|------|------|------|------|---------------------------|
| Annual water withdrawal (estimate in millions of m <sup>3</sup> ) <sup>(a)</sup>  | –    | 394  | 270  | 257  | <b>950<sup>*(b)</sup></b> |
| Annual water consumption (estimate in millions of m <sup>3</sup> ) <sup>(c)</sup> | 81   | 86   | 94   | 90   | <b>82*</b>                |

(a) Gross withdrawal. The methodology used has been in place since 2017 and the annual water withdrawal was calculated for the first time for the 2018 Registration Document.

(b) In 2021, a new reporting tool was implemented and new collection criteria introduced; the increase in reported water quantities for both withdrawals and discharges compared with previous years results from the inclusion of more Open Cooling Circuits, enabled by more granular reporting.

(c) Net water consumption, calculated as the difference between the water withdrawn and the water returned to the source.

\* Indicator verified by the independent verifier.



In 2021, the introduction of enhanced reporting, enabled by implementation of a new reporting tool, made it possible to increase the scope of measurement to include more water withdrawal points at customer sites. This water is used in facilities with open cooling circuits in which the water withdrawn is returned to customers. Consequently, though the reported quantities of water withdrawn and returned to the source show an increase, the net water consumption, which is now more accurate as a result of improved actions, shows a -9% decrease compared with previous year. These continuous improvements are reflective of the Group's continued stewardship in water management.

## DISCHARGES INTO AIR AND WATER

### Discharges into air and water (in tonnes)

|   | 2017   | 2018   | 2019   | 2020   | 2021             |
|---|--------|--------|--------|--------|------------------|
| Discharges into air: NOx (nitrogen oxides)                                  | 3,542  | 3,974  | 5,043  | 3,727  | <b>3,720</b>     |
| Discharges into air: SOx (sulfur oxides)                                    | <100   | <100   | <100   | <100   | <b>&lt;100</b>   |
| Volatile organic compounds (VOCs) discharged into the atmosphere (estimate) | 146    | 246    | 299    | 236    | <b>206</b>       |
| Discharges to water: oxidizable matter                                      | <1,000 | <1,000 | <1,000 | <1,000 | <b>3,734</b>     |
| Discharges to water: suspended solids                                       | <1,000 | <1,000 | <1,000 | <1,000 | <b>&lt;1,000</b> |

## Waste and by-products

Air Liquide is committed to continuous improvement of its environmental waste footprint. To this end, in 2019, the reporting of waste and by-products changed to provide a more comprehensive view of the types of waste generated and their management. This approach focuses on the three main hazardous waste groups at each site, allowing a better appreciation of the main environmental impacts associated with waste in each location. This new approach will be further refined in the coming years, in order to provide a view that will allow this environmental footprint to be managed more effectively within the Group.

| Main hazardous waste | % of sites which mentioned it as one of their three main hazardous waste categories * | Treatment mode | Volume concerned* |
|----------------------|---|----------------|-------------------|
| Oils                 | 63.2%   | Recycling      | 72.1%             |
| Paints and solvents  | 8.2%  | Incineration   | 89.0%             |
| Batteries            | 72.0%   | Recycling      | 76.9%             |

\* Indicator verified by the independent verifier.

For non-hazardous waste, the main waste groups are metal, paper, wood and plastics. More than half of the Group's sites provide a selective collection of this waste. More than 98% of metal is recycled at all sites.

| Non-hazardous waste and by-products  | 2017          | 2018          | 2019                  | 2020                 | 2021            |
|--|---------------|---------------|-----------------------|----------------------|-----------------|
| Annual quantity of lime produced (extracted by dry equivalent) by the acetylene production units (in tonnes) | 25,000        | 25,380        | 31,247                | 27,966               | <b>31,281</b>   |
| % recycled   | > 90%         | > 90%         | > 90%                 | > 90%                | <b>&gt; 90%</b> |
| Metal waste (in tonnes) <sup>(a)</sup>   | 61,513        | 61,680        | 20,632 <sup>(b)</sup> | 6,861 <sup>(c)</sup> | <b>11,755*</b>  |
| % recycled   | > 99%         | > 99%         | > 99%                 | > 99%                | <b>&gt; 99%</b> |
| <b>TOTAL NON-HAZARDOUS WASTE AND BY-PRODUCTS (estimate in tonnes)</b>  | <b>86,513</b> | <b>87,060</b> | <b>51,879</b>         | <b>34,827</b>        | <b>43,036</b>   |

(a) Non-hazardous metal waste.

(b) Decrease in 2019 following the end of the Airgas unused cylinder cleaning process.

(c) Decrease in 2020 following the divestment of a plant and an economic situation which has caused delays in the disposal of metal waste.

\* Indicator verified by the independent verifier.

## EUROPEAN TAXONOMY

The European Union (EU) Taxonomy regulation (Regulation (EU) 2020/852 published on June 18, 2020) defined, on a scientific basis, a list of economic activities and the technical criteria that allows said activities to qualify as environmentally sustainable. In 2021, Air Liquide identified 17 activities eligible for the climate change mitigation objective out of 90 activities listed in the delegated act, of which hydrogen production was the most significant.

### Turnover

| Economic activities  | Absolute turnover (in millions of euros) | Proportion of turnover (%) |
|--|--|----------------------------|
| <b>A. TAXONOMY - ELIGIBLE ACTIVITIES</b>                             | <b>2,422.8</b>                           | <b>10.4%</b>               |
| Activity C: Manufacturing  | 2,340.2                                  | 10.0%                      |
| Activity D: Energy   | 6.2                                      | 0.0%                       |
| Activity E: Water supply, sewerage, waste management and remediation | 69.0                                     | 0.4%                       |
| Activity H: Transport  | 7.4                                      | 0.0%                       |
| <b>B. TAXONOMY - NON-ELIGIBLE ACTIVITIES</b>                         | <b>20,912.0</b>                          | <b>89.6%</b>               |
| <b>TOTAL (A + B)</b>   | <b>23,334.8</b>                          | <b>100.0%</b>              |



## Capital expenditures

| Economic activities  | Absolute CapEx<br>(in millions of euros) | Proportion of CapEx<br>(%) |
|--|--|----------------------------|
| <b>A. TAXONOMY - ELIGIBLE ACTIVITIES</b>                             | <b>428.6</b>                             | <b>11.9%</b>               |
| Activity C: Manufacturing  | 342.2                                    | 9.5%                       |
| Activity D: Energy   | 0.2                                      | 0.0%                       |
| Activity E: Water supply, sewerage, waste management and remediation | 47.7                                     | 1.3%                       |
| Activity F: Construction and real estate activities                  | 8.3                                      | 0.2%                       |
| Activity H: Transport  | 9.8                                      | 0.3%                       |
| Activity J: Information and Communication                            | 7.1                                      | 0.2%                       |
| Activity M: Professional, scientific and technical activities        | 13.3                                     | 0.4%                       |
| <b>B. TAXONOMY - NON-ELIGIBLE ACTIVITIES</b>                         | <b>3,171.6</b>                           | <b>88.1%</b>               |
| <b>TOTAL (A + B)</b>   | <b>3,600.2</b>                           | <b>100.0%</b>              |

## Operating expenses

| Economic activities  | Absolute OpEx<br>(in millions of euros) | Proportion of OpEx<br>(%) |
|--|---|---------------------------|
| <b>A. ELIGIBLE ACTIVITIES</b>  | <b>1,137.1</b>                          | <b>11.6%</b>              |
| Activity C: Manufacturing  | 1,017.8                                 | 10.4%                     |
| Activity D: Energy   | 5.3                                     | 0.1%                      |
| Activity E: Water supply, sewerage, waste management and remediation | 25.9                                    | 0.3%                      |
| Activity H: Transport  | 4.0                                     | 0.0%                      |
| Activity J: Information and Communication                            | 2.7                                     | 0.0%                      |
| Activity M: Professional, scientific and technical activities        | 14.5                                    | 0.1%                      |
| Renewable energy purchases on non-eligible activities                | 66.9                                    | 0.7%                      |
| <b>B. NON-ELIGIBLE ACTIVITIES</b>                                    | <b>8,665.1</b>                          | <b>88.4%</b>              |
| <b>TOTAL (A + B)</b>   | <b>9,802.2</b>                          | <b>100.0%</b>             |

The tables presented above correspond to the activities listed for the objective of climate change mitigation. Concerning the activities contributing to the objective of climate change adaptation, the only activity identified as eligible at Air Liquide is the residential care activity whose three KPIs – turnover, CapEx and OpEx – amount respectively to 28.0, 20.5 and 13.5 million euros as of December 31, 2021.

## HUMAN RESOURCES INDICATORS

 Group employees<sup>(a)</sup>

| Employees   | 2017   | 2018   | 2019   | 2020   | 2021           |
|---|--------|--------|--------|--------|----------------|
| Group employees   | 65,200 | 66,000 | 67,200 | 64,445 | <b>66,436*</b> |
| Women   | 16,900 | 17,300 | 17,500 | 17,242 | <b>18,324*</b> |
| as a %  | 26%    | 26%    | 26%    | 27%    | <b>28%</b>     |
| Men   | 48,300 | 48,700 | 49,700 | 47,203 | <b>48,112*</b> |
| as a %  | 74%    | 74%    | 74%    | 73%    | <b>72%</b>     |
| Joining the Group <sup>(b)</sup>                              | 16.7%  | 16.5%  | 17.4%  | 11.1%  | <b>20.0%</b>   |
| Leaving the Group <sup>(c)</sup>                              | 18.0%  | 15.2%  | 16.4%  | 19.7%  | <b>17.7%</b>   |
| % of employees having resigned during the year <sup>(d)</sup> | 7.5%   | 8.0%   | 7.5%   | 5.8%   | <b>9.6%</b>    |

(a) Employees under contract, excluding temporary employees.

(b) Hiring or integration due to acquisitions. The percentage is based on the number of employees as of December 31 of the preceding year.

(c) Retirement, resignations, layoffs (approximately 20% of departures), departures due to disposals, etc. The percentage is calculated based on the number of employees as of December 31 of the preceding year.

(d) Calculated on the number of employees as of December 31 of the preceding year.

\* Indicator verified by the independent verifier.

## Human Resources indicators for the Group

|  | 2017    | 2018      | 2019    | 2020     | 2021                           |
|--|---------|-----------|---------|----------|--------------------------------|
| <b>PARITY AND DIVERSITY</b>  |         |           |         |          |                                |
| Gender mix   |         |           |         |          |                                |
| % of women among managers and professionals  | 29%     | 29%       | 29%     | 30%      | <b>31%*</b>                    |
| % of women among managers and professionals hired during the year  | 37%     | 36%       | 38%     | 36%      | <b>38%*</b>                    |
| % of women among employees considered high-potential   | 40%     | 41%       | 41%     | 43%      | <b>46%</b>                     |
| % of women in positions defined as "Executives"  | –       | 19%       | 19%     | 21%      | <b>24%</b>                     |
| Number of nationalities  |         |           |         |          |                                |
| Among expatriates  | 53      | 49        | 55      | 51       | <b>48</b>                      |
| Among senior executives  | 33      | 30        | 34      | 34       | <b>35</b>                      |
| Among employees considered high-potential  | 52      | 53        | 55      | 55       | <b>53*</b>                     |
| Number of nationalities among senior executives / Number of countries where the Group is present         | 41%     | 38%       | 43%     | 44%      | <b>47%</b>                     |
| <b>TRAINING</b>  |         |           |         |          |                                |
| % of total payroll allocated to training   | App. 2% | App. 1.5% | App. 2% | App. 1%  | <b>App. 1%</b>                 |
| Average number of days of training per employee, per year (order of magnitude)                           | 3 days  | 2.7 days  | 3 days  | 2.1 days | <b>3.3 days<sup>(a)*</sup></b> |
| % of employees who received training at least once during the year (order of magnitude)                  | 73%     | 63%       | 70%     | 65%      | <b>74%*</b>                    |
| <b>PERFORMANCE REVIEW</b>  |         |           |         |          |                                |
| % of employees who had an annual performance review meeting with their direct supervisor during the year | 81%     | 80%       | 78%     | 83%      | <b>83%*</b>                    |
| % of employees who had a career development meeting with the HR department during the year               | 17%     | 13%       | 14%     | 12%      | <b>13%</b>                     |
| <b>REMUNERATION</b>  |         |           |         |          |                                |
| % of employees with an individual variable component as part of their remuneration                       | 66%     | 53%       | 56%     | 59%      | <b>60%</b>                     |

|   | 2017     | 2018     | 2019                 | 2020     | 2021                      |
|---|----------|----------|----------------------|----------|---------------------------|
| <b>ABSENTEEISM</b>  |          |          |                      |          |                           |
| Absence rate of Air Liquide employees (estimate)  | 2.5%     | 2.3%     | 2.1%                 | 1.9%     | <b>1.4%</b>               |
| <b>EMPLOYEE LOYALTY</b>   |          |          |                      |          |                           |
| Average length of service in the Group  | 10 years | 10 years | 10 years             | 10 years | <b>9.9 years</b>          |
| Retention rate of managers and professionals over one year <sup>(b)</sup>                                 | 93%      | 93%      | 93%                  | 95%      | <b>93%</b>                |
| <b>SOCIAL PERFORMANCE</b>   |          |          |                      |          |                           |
| % of employees with disabilities <sup>(c)</sup>   | 1.1%     | 1.1%     | 1.2%                 | 1.2%     | <b>1.2%<sup>(d)</sup></b> |
| % of employees with access to a representation/dialog-consultation structure                              | 85%      | 86%      | 80.4% <sup>(e)</sup> | 81%      | <b>82%</b>                |
| % of employees who participated in an internal engagement survey (MyVoice) during the year <sup>(f)</sup> | 45%      | 36%      | 74%                  | 80%      | <b>83%</b>                |
| <b>EMPLOYEE SHAREHOLDERS</b>  |          |          |                      |          |                           |
| % of capital held by the Group 's employees <sup>(g)</sup>  | 1.5%     | 1.7%     | 1.7%                 | 1.7%     | <b>1.9%</b>               |
| % of Group employees that are shareholders of L'Air Liquide S.A.  | 36%      | 43%      | 40%                  | 40%      | <b>48%</b>                |

(a) 16 hours per year when counted in hours (base: 1 day = 7.5 hours), does not take into account training courses if they do not total a minimum of one day (e.g. e-learning).

(b) This rate is calculated as follows: 100% - (Number of resignations among managers and professionals/Total number of managers and professionals).

(c) For countries where regulations allow this data to be made available.

(d) Estimated rate pending finalization of the DOETH 2020, which cannot be compared with the rates of previous years as the legal definition and the Scope of calculation were changed in 2020.

(e) Decrease in 2019 related to the acquisition of new entities with no existing structures.

(f) Implementation of MyVoice in 2020. Previous years represent the % of employees who participated in a commitment survey over the last three years.

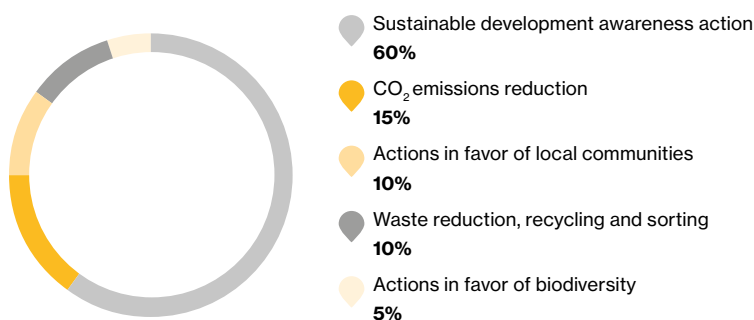
(g) As defined by Article L. 225-102 of the French Commercial Code.

\* Indicator verified by the independent verifier.

## Employee commitment and training

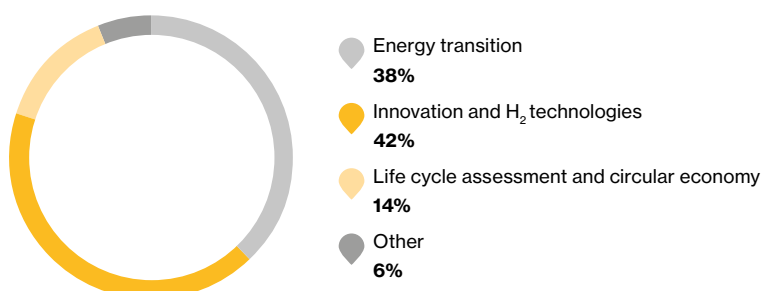
Sustainability Ambassadors implement local initiatives to raise awareness and share best practices among colleagues regarding sustainable development. In 2021, their action covered areas such as waste and recycling and CO<sub>2</sub> emissions reduction, among others.

### Initiatives in 2021



In order to train employees on the sustainability objectives announced by the Group, Air Liquide University launched training modules on the themes of energy transition, innovation and circular economy.

### Training in 2021





## OUR COMMITMENT TO SUSTAINABLE DEVELOPMENT AND HUMAN RIGHTS

The ten principles of the United Nations Global Compact are derived from: the Universal Declaration of Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention against Corruption. Air Liquide has been a signatory of the UN Global Compact initiative since 2015.



### Air Liquide's commitments

### The 10 principles of the United Nations Global Compact

#### Human Rights

1. Businesses should support and respect the protection of internationally proclaimed human rights; and
2. Make sure they are not complicit in human rights abuses.

#### International Labor Standards

3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
4. The elimination of all forms of forced and compulsory labor;
5. The effective abolition of child labor;
6. The elimination of discrimination in respect of employment and occupation.

#### Environment

7. Businesses should support a precautionary approach to environmental challenges;
8. Undertake initiatives to promote greater environmental responsibility; and
9. Encourage the development and dissemination of environmentally friendly technologies.

#### Anti-Corruption

10. Businesses should work against corruption in all its forms, including extortion and bribery.

## EXTRA-FINANCIAL REPORTING GUIDELINES



Air Liquide believes the major climate-related challenges of our society can be overcome.

This is why Air Liquide has been an active member of the TCFD (Task Force on Climate-related Financial Disclosures), a working group which brings together institutional investors, audit firms and listed companies whose aim is to formulate recommendations on information to be provided, on a voluntary basis, relating to the financial risks associated with changes to the climate.

Air Liquide has also declared its support for the TCFD.



The Sustainability Accounting Standards Board (SASB) is a non-profit organization created in 2011, producing sustainable development reporting standards by industry sector.

The SASB takes the following elements into account when establishing its standards: environment; social capital; human capital; innovation and economic model; and leadership and governance.












GRI is an international independent standards organization that helps businesses, governments and other organizations understand and communicate their impacts on issues such as climate change, human rights and corruption.

GRI provides companies with a comprehensive sustainability reporting framework that places an equal weight on environmental, social and governance factors. The GRI Standards reporting framework is widely adopted around the world.

Readers can find cross-reference tables of extra-financial reporting guidelines in chapter 5 of the [2021 Universal Registration Document](#).

EXTRA-FINANCIAL PERFORMANCE

In 2021, the Group responded to the non-financial rating agencies and organizations presented below, each recognized for their appropriate methodology and high-quality reports. Air Liquide is recognized and placed in the top quartile of most leading ratings.

|  |  |  |
|--|--|--|
|  <p><b>CDP</b></p> <p>Air Liquide remained a <b>Level A leader</b> in its category, scoring an <b>A-</b> on both Climate and Water performance.</p>                                   |  <p><b>CDP Supplier Leadership Board</b></p> <p>Air Liquide earned a place on the <b>CDP Supplier Engagement Rating Leadership Board</b>.</p> |  <p><b>MSCI</b></p> <p>Air Liquide has maintained its <b>A grade</b>, ranking in the <b>top 22%</b> of companies in corporate social responsibility.</p>                              |
|  <p><b>Ecovadis</b></p> <p>For the <b>fifth consecutive year</b>, Air Liquide has won a <b>Gold 2021 Ecovadis Sustainability medal</b>, maintaining its score of <b>68/100</b>.</p> |  <p><b>Sustainalytics</b></p> <p>Recognized as <b>“ESG Industry Top Rated”</b>, Air Liquide has received a <b>“low risk”</b> rating.</p>    |  <p><b>ISS</b></p> <p>With a <b>C+</b> rating, Air Liquide ranks in the <b>top 10%</b> of companies in the running, earning ISS <b>“Prime” Status</b>.</p>                          |
|  <p><b>FTSE</b></p> <p>Air Liquide remains a constituent of the <b>FTSE4Good Index Series</b> for 2022.</p>   |  <p><b>Vigeo eiris</b></p> <p>Awarded a score of <b>61/100</b>, Air Liquide ranks in the <b>top 10%</b>.</p>                                |  <p><b>S&amp;P 100</b></p> <p>In 2021, Air Liquide provided <b>enhanced disclosure</b> on various ESG topics in the <b>S&amp;P Global CSA questionnaire</b> for the first time.</p> |



# To learn more...



**OUR ANNUAL REPORT**



**OUR UNIVERSAL REGISTRATION DOCUMENT**



**OUR ACT BROCHURE**



**OUR VIGILANCE PLAN**

## AND ONLINE



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A world leader in gases, technologies and services for industry and health, Air Liquide is present in 75 countries with around 66,400 employees and serves over 3.8 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.



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