



# *Green Bond Allocation & Impact Reporting 2024*

May 2024

“ The success of this inaugural green bond issuance illustrates the investors’ confidence in **Air Liquide’s ability to implement projects that will contribute to building a sustainable future**. It is in line with the ambitious sustainable objectives we announced in March, particularly in terms of reducing CO<sub>2</sub> emissions, and will allow us to materialize them. With the ambition to become a regular issuer of sustainable bonds, Air Liquide is more than ever committed to put performance and ESG at the heart of its growth strategy. ”



**Fabienne Lecorvaisier** (May 2021), Executive Vice President and member of Executive Committee (until May 3 2023)

©Mourad Mokrani

## Highlights:

**€500m** issued in  
May 2021

**10 year** maturity

**0.375%**  
coupon rate

**21 green** projects  
financed

**€500m** allocated as  
of 31 December 2022

**101** investors of which  
**66% Green**



Becancour PEM electrolyzer, Canada



# Contents



Anaerobic digester, France

1	Air Liquide’s Sustainable Business and Financial Strategy	p. 4-7
2	Sustainable Financing Framework at a glance	p. 8-9
3	Inaugural Green Bond Issuance Summary	p. 10
4	Allocation Reporting	p. 11-12
5	Impact Reporting	p. 13
6	Case Studies	p. 14-17
	<i>Limited assurance report</i>	<i>p. 18-20</i>

# 1 Air Liquide's Sustainable Business and Financial Strategy

## Air Liquide as a pioneer



Innovation fair in Paris, 19th century

AL issues the **first ISR bond** ever to finance Healthcare acquisitions of LVL and Gasmedi.

2012

March - AL presents its plan for a sustainable future - First Air Gases corporate to announce **carbon neutrality objective** for 2050.

2019

AL links its **€2.5 bn** Syndicated Credit Facility to three **ESG KPIs**.

2021

May - AL releases its **Sustainable Financing Framework** and issues its **first €500m green bond**.

March - AL presents **ADVANCE**, its new **strategic plan** for 2025 combining **financial and extra-financial performance**.

2022

May - AL publishes its first **Green Bond Allocation and Impact reporting**.

2023

May - AL publishes its second **Green Bond Allocation and Impact reporting**, accounting for the **full allocation** of the €500m May 2021 green bond proceeds.

**CO<sub>2</sub> emissions start decreasing in absolute value (around 2025)**

2025

**30% reduction in carbon intensity**

2035

**33% reduction in CO<sub>2</sub> absolute emissions (Scope 1 & 2)**

2050

Reach **Carbon Neutrality** by 2050

# 1 Air Liquide's Sustainable Business and Financial Strategy

## Extra financial performance

- ★ In 2023, the Group responded to key extra-financial rating agencies and organizations known for their rigorous methodology and the quality of their reports.
- ★ Rating and distinctions obtained by the Group in 2023 for some Key ESG assessments are as follows:



**CDP**

Air Liquide remained a Level A leader in its category, scoring an A- on both climate and Water performance.

**S&P Dow Jones Indices**

A Division of **S&P Global**

**S&P 100**

For the second year running, Air Liquide has been included in the DJSI Europe index in recognition of its commitment to social and environmental responsibility.



**FTSE**

Air Liquide remains a constituent of the FTSE4Good index series in 2023.

**ecovadis**

**Ecovadis**

In 2023, Air Liquide once again ranks in the top 10% of the best-rated companies.



**MSCI**

Air Liquide has maintained its A rating, ranking in the top 26.5% of companies in terms of social responsibility.



**ISS**

Air Liquide ranks in the top 10% of companies in the running, earning ISS "Prime" status.

**MOODY'S** | ESG Solutions

**Moody's ESG Solutions**

Air Liquide ranked in the top 3% of assessed companies.



**Sustainalytics**

Recognized as "ESG Industry Top Rated", Air Liquide received a "low risk" rating.



**SCIENCE  
BASED  
TARGETS**

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Air Liquide's Scope 1 & 2 CO<sub>2</sub> emissions reduction target for 2035 has been **validated** by the Science Based Target (SBTi) initiative as being compliant and in line with climate science.

The Group was the first in its industry to obtain this validation from the SBTi



# 3 pillars of our engagement



# 1 Air Liquide's Sustainable Business and Financial Strategy

## Focus on Low-carbon Society



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

16.3

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

Scope 1 - direct emissions generated by all emission sources owned or controlled by Air Liquide

23.0

Mt CO<sub>2</sub>

Scope 2 - indirect emissions related to the production of electricity or steam purchased outside the Group

22.1

Mt CO<sub>2</sub>

Scope 3 - other indirect emissions related to the life cycle of products 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.

13.3

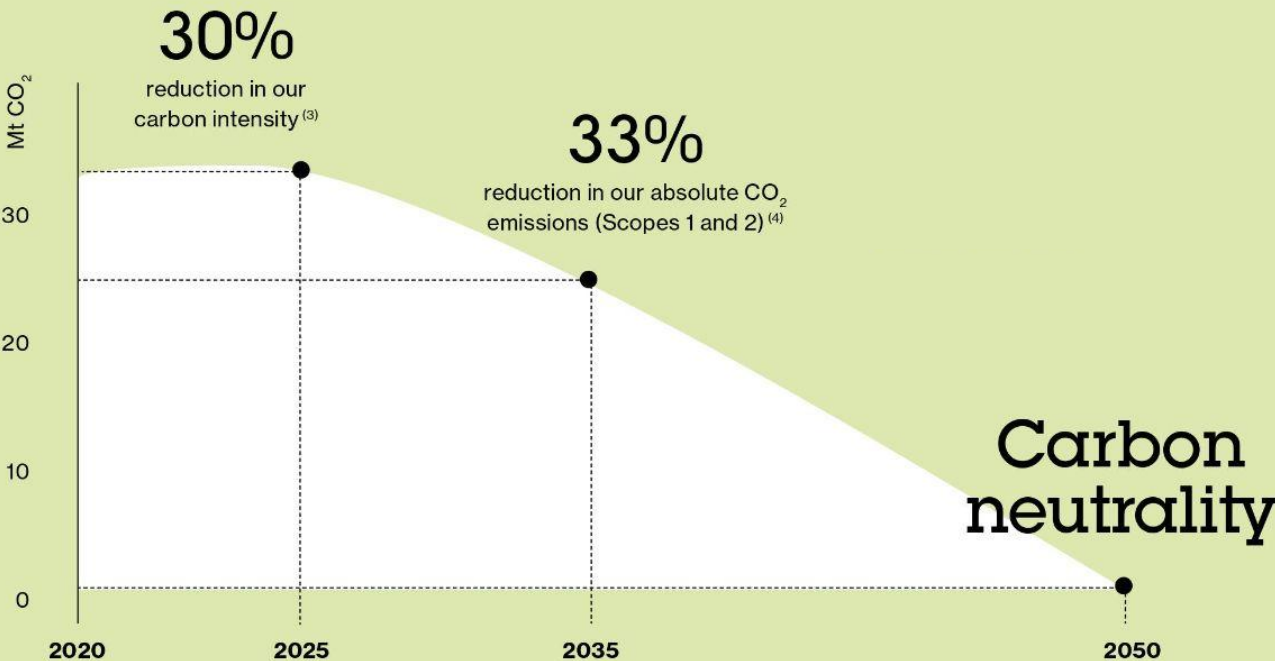
Mt CO<sub>2</sub>

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

64.1

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






# 2 Sustainable Financing Framework at a glance

## Overview Of Air Liquide's Green projects

In line with its sustainability strategy and its new '**ACT for a Sustainable future**' program released in 2021, Air Liquide published in May 2021 a Sustainable Financing Framework aligned with best market practices to finance sustainable projects with a **clear benefit to environment (green projects) and society (social projects)**.

Air Liquide Green Eligible Projects are primarily capital expenditures but may also include maintenance costs, equity shares and investment in dedicated funds as well as R&D and innovation expenses for projects related to the **Abatement of CO<sub>2</sub> emissions pillar of its ACT priorities**.

### Presentation of the eligible project categories:

Biogas	 Air Liquide develops industrial systems designed to purify the biogas that comes from sanitary landfills or anaerobic digesters. The objective is to generate biomethane that is produced in compliance with clear sustainability criteria and is commercialized to displace fossil fuel.
Energy efficiency	 Air Liquide deploys new processes, implements digital tools and develops Smart Innovative Operations (SIO) to optimize the Group's energy consumption.
Air gases	 Through its outsourcing business model, Air Liquide implements highly efficient, state-of-the art technologies with reduced footprint and for the benefit of its customers.
Hydrogen	 Air Liquide deploys hydrogen production and supply technologies across the entire value chain, from production to storage, to distribution, to support the wider use of hydrogen in the Energy Transition.
Green buildings	 Air Liquide invests in buildings designed to reduce energy consumption and environmental impact. As part of our sustainable development approach, those buildings are aiming for high level of recognized certifications.



The eligible categories listed above will generate positive environmental impacts and advance the UN Sustainable Development Goals, specifically SDGs 7, 9, 11 and 13.



# 2 Sustainable Financing Framework at a glance

## Evaluation summary



**A dedicated governance** - The Air Liquide Sustainable Financing working group, which evaluates and selects the eligible projects, is chaired by the Group CFO and made up of various business heads from throughout the Company. This working group meets at least once a year plus once at the upstream of each new bond issuance.



**Management of proceeds** - Air Liquide's Treasury Department is in charge of the eligible proceeds tracking managed on a portfolio basis. The Sustainable Register including the amount of allocation per eligible project category is annually reviewed by the Sustainable Financing working group.



**Reporting** - Air Liquide hereby reports on its annual performance, both in terms of the allocation of funds and the positive impact achieved or expected. This reporting will provide an annual update until the full allocation of the proceeds.

Air Liquide Sustainable Financing Framework is aligned with the **Green Bond Principles** (2018), **Green Loan Principles** (2020), **Social Bond Principles** (2020), **Social Loan Principles** (2021) and **Sustainability Bond Guidelines** (2018).



SUSTAINALYTICS

*"Sustainalytics is of the opinion that the Air Liquide Sustainable Financing Framework is robust and transparent. Sustainalytics is confident that Air Liquide is well-positioned to issue green, social, and sustainability bonds".*

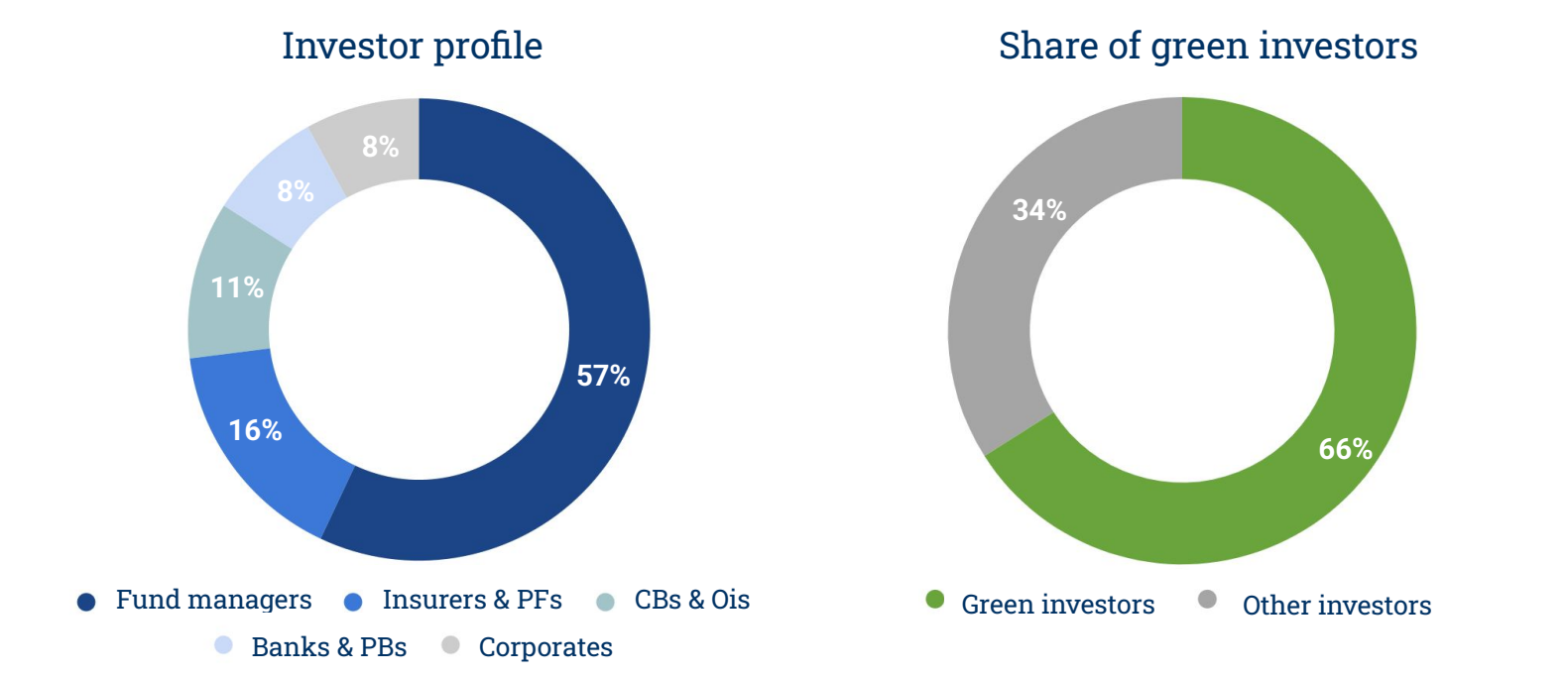
# 3 Inaugural Green Bond Issuance Summary

## Key figures

In May 2021, after several days of roadshows presenting its Sustainable Financing Framework, Air Liquide successfully launched its **inaugural green bond issuance** with a **ten year maturity** and an **annual coupon of 0.375%**.

Issuer / Guarantor	Air Liquide Finance (the “Issuer”), guaranteed by L’Air Liquide S.A. (the “Parent Guarantor”)
Form of Issue	Green bond Senior, Unsecured Global Notes
Documentation	EMTN programme
Active Bookrunners	Crédit Agricole, BNP Paribas, HSBC, Société Générale, Natixis
Tenor	10-year
Re-offer yield / Spread	0.461% / MS + 28bps
Indicative size	€500m
ISIN	FR0014003N69
Second Opinion	Sustainalytics

This new bond was largely **oversubscribed** (3.5x) and attracted a **majority of Green investors (66%)**, predominantly **Fund managers** (57%). The purpose of this inaugural Green Bond is to contribute to the financing of the ambitious sustainable projects the Group announced on March 23, 2021 (*Sustainability day*) and reaffirmed on March 22, 2022 (*Capital Markets day*).



# 4

## Allocation reporting

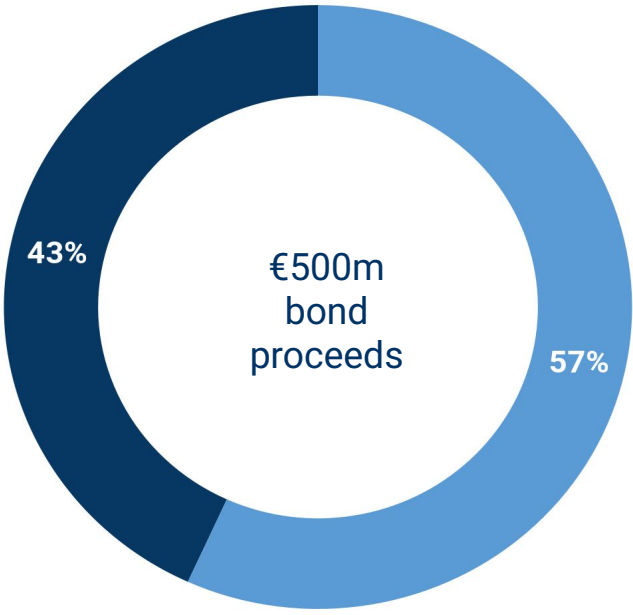
### A Well Balanced Portfolio for Inaugural Green Bond

Number of projects by category



● Biogas ● Energy Efficiencies ● Air Gases  
● Hydrogen ● Green Building

Financing and Refinancing breakdown



● Financing ● Refinancing

### 20 Projects located all over the world



\* Case studies of these projects below



4

# Allocation reporting

## €500m allocated since December 31, 2022

As of 31 December 2023, the full €500m proceeds of the inaugural green bond were allocated as follows:



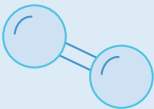




In addition, €50.6m are assigned to R&D OpEx for the above project categories, leading to a total amount allocated of **€500m** as of December 31, 2023.

5

# Impact reporting

## Output indicators and CO2 emissions avoided by project

Eligible Project Category		Output indicator		Impact indicator Estimated CO2 emissions avoided*, when operating at nominal load
	Biogas	Annual production of biogas	592,100 MWh	118,420 tCO2eq/y
		Annual amount of landfill gas produced	346,900 MWh	55,538 tCO2eq/y
	Energy efficiencies	Annual reduction of energy consumption	17,520 MWh	7,008 tCO2eq/y
	Hydrogen	Annual hydrogen production	4,352 tH2	47,572 tCO2eq/y
		Number of HRS (Hydrogen Refuelling Station) installed	51 HRS	67,109 tCO2eq/y
	Air gases	Energy saving of the ASU	25,000 MWh	9,200 tCO2eq/y
	Green buildings	Surface area	23,000m2	983 tCO2eq/y

\*Avoided emissions are the greenhouse gas emissions, expressed in tCO<sub>2</sub>equivalent, that are avoided by the financed projects (when feasible) ; they are estimated by comparing with a reference case for each category of project or, when a generic reference is not available, an estimate of savings based on energy savings realized.

\*\* ~252,4 kt CO2 eq/y avoided prorated for the Green Bond financing part.

Total:

305,830\*\*

tCO<sub>2</sub>eq/y

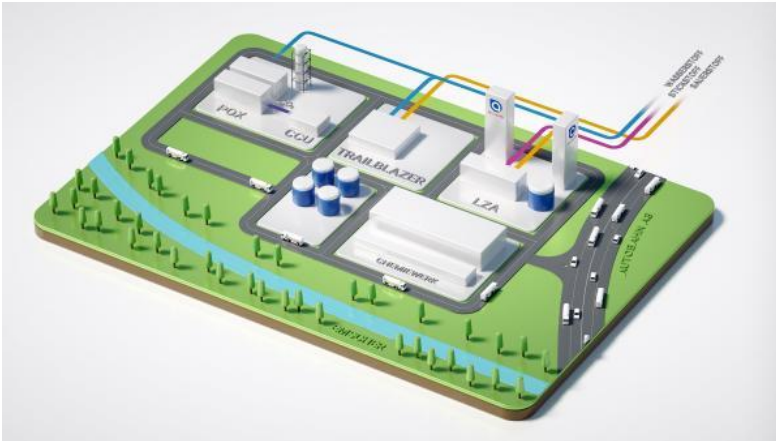
avoided

# 6

## Case studies - *Green Production*

### Zoom on the Trailblazer electrolyzer, Germany

Over 1,400 tons per year of carbon-free hydrogen to be produced as of 2023.



Capacity of **20 megawatts** powered by hydraulic and renewable energy



Integrated into Air Liquide's existing hydrogen pipeline



For industrial use and emission-free mobility in North Rhine-Westphalia

20 MW

30 MW

2023

Final objective

The PEM electrolyser will be the largest production facility of climate-neutral hydrogen to be connected to an existing pipeline.



@Dirk Jochmann

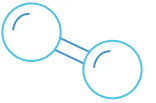
Gilles Le Van - Air Liquide, Vice-President Large Industries and Energy Transition Central Europe, Frank-Walter Steinmeier - Federal President, and Johanna Hess - Air Liquide, Project Manager Trailblazer (from left to right)



# 6

## Case studies - *Green Production*

### Zoom on the Becancour electrolyzer, Canada



Over 1,500 tons of renewable hydrogen sold in 2021.



Capacity of **20 megawatts** powered by hydraulic energy



Production of up to 8.2 tons of renewable hydrogen per day



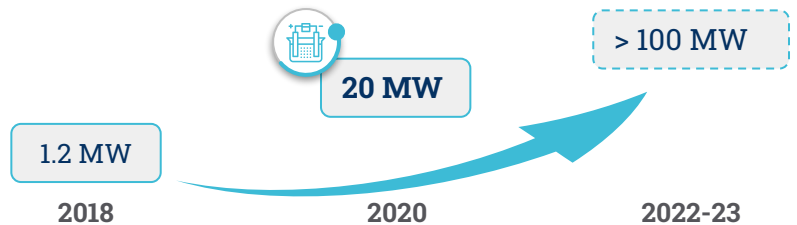
Integration in existing **AL basin**, with H<sub>2</sub> liquefier



For **industrial** use and **mobility**



The largest PEM (Proton Exchange Membrane) electrolyzer running on hydropower (started in Q4 2020).



### Zoom on the Fontanella anaerobic digester, Italy

From tons of manure to fertilizer and truck fuel.



An Air Liquide investment in the **overall biomethane value chain**, in partnership with DIS, long term Air Liquide partner.



23 GWh/y biomethane capacity equivalent to the yearly consumption of 35 Heavy-Duty Vehicles .



Participates to make Air Liquide leader as producer and distributor of bioLNG in Lombardy and Veneto basins.

A circular economy project leading to transform agricultural wastes into a fertilizer and bioLNG valorized locally.

# 6

## Case studies - *Core business efficiencies*

### Zoom on Moerdijk Air Separation Unit (ASU)



1<sup>st</sup> world-scale oxygen production plant fit to accommodate renewable energy in the grid.



Production capacity of **2,200 tons** of oxygen per day



**Highly efficient plant: 10% less** electricity consumption



Built with the proprietary **solution Alive**



For **industrial, food and medical** markets



The first world-scale ASU for oxygen production with an energy storage system that helps facilitate more renewable energy on the electricity grid. This project illustrates Air Liquide's strategy to grow in strategic industrial basins, and the Group's ability to design and implement innovative solutions contributing to the energy transition.



### Zoom on Hamilton Basin energy efficiencies

Improving site efficiency and CO<sub>2</sub> emissions through modernizing old equipment.



Site power consumption to decrease by **2MW**



**Indirect CO<sub>2</sub> Emissions reduction by 1.3kt/y**



Energy Savings initiative recognized by the Ontario's independent Electricity System Operator

The installation of a new single compressor will reduce power consumptions and indirect CO<sub>2</sub> emissions along with increased compressor agility to avoid high cost energy peaks. In line with Group ambition and with Provincial Government support, the project is also enabling SIO readiness compressor configuration.

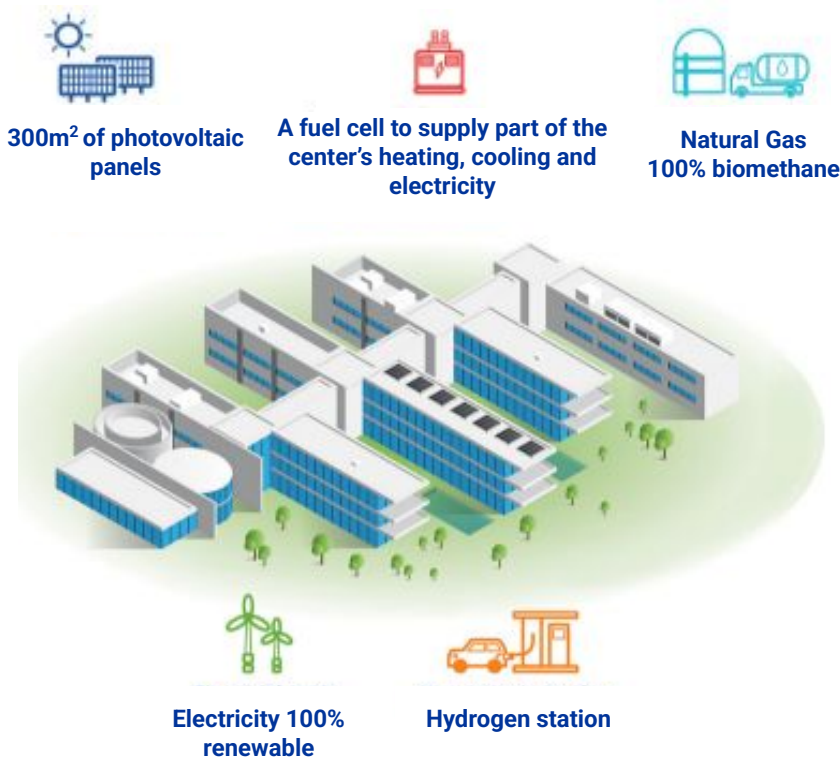


# 6 Case studies - *Innovation on ecosystems*

## Zoom on Saclay innovation campus



Air Liquide's new Paris R&D Center has been fully renovated.

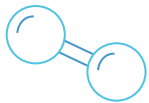


The facility is the Group's largest R&D Center and brings together almost 500 people, including 350 researchers, and **48 laboratories** as well as pilot platforms to design and test technologies at larger scale.



The R&D Center is also a **sustainable development innovation flagship**, as it is a high-performance energy building allowing to test new clean energies.

"Excellent" BREEAM certification



## Zoom on H2M hydrogen refuelling stations

Invest, build and operate a network H<sub>2</sub> refuelling stations in Germany.



Air Liquide brings its **technology and experience** to support the deployment of hydrogen stations in Germany.



With the ramp-up of the number of vehicles, up to 400 hydrogen stations should ensure a nationwide supply (from 40 stations in operation in July 2018).

Air Liquide is involved in the entire hydrogen value chain. The Group has already installed 100 hydrogen stations worldwide.





## Limited assurance report from the Statutory Auditor on the Identified Sustainability Information in Air Liquide's Green Bond Allocation & Impact Reporting as at December 31, 2023

To the Board of Directors of Air Liquide Finance,

In our capacity as Statutory Auditor of Air Liquide Finance (hereinafter the "Company") and in accordance with your request, we have undertaken a limited assurance engagement on

- the information related to the allocation as at December 31, 2023 in respect of the Green bond with a ten year maturity issued on May 27, 2021 by the Company for a total amount of 500M€ (ISIN FR0014003N69) ("the "Green Bond") as set out in note 4 of the *Green Bond Allocation & Impact Reporting* to the projects presented in note 4 of the above mentioned report (the "Eligible Projects");

- the eligibility of the Eligible Projects in the light of the *Sustainability Financing Framework*;

(the 'Identified Sustainability Information').

Our assurance does not extend to information in respect of earlier periods or to any other information included in the *Green Bond Allocation & Impact Reporting* or linked to the Identified Sustainability Information or from the *Sustainable Financing Framework*, including any images, audio files or embedded videos.

### **Our Limited Assurance Conclusion**

Based on the procedures we have performed as described under the section '*Summary of the Work we Performed as the Basis for our Assurance Conclusion*' and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Identified Sustainability Information presented in section 4 of the *Green Bond Allocation & Impact Reporting* as at December 31, 2023 is not prepared, in all material respects, in accordance with the Sustainability Financing Framework used (see below under 'Understanding how the Company has prepared the Identified Sustainability Information').

### **Understanding how the Company has Prepared the Identified Sustainability Information**

The absence of a commonly used generally accepted reporting framework or a significant body of established practice on which to draw, to evaluate and measure Identified Sustainability Information allows for different, but acceptable, measurement techniques that can affect comparability between entities and over time.

Consequently, the Identified Sustainability Information needs to be read and understood together with the *Sustainability Financing Framework* in particular the basis of preparation set out in section 3.1 titled *Use of Proceeds* ('the Criteria'), which the Company has used to prepare the Identified Sustainability Information (together "the Reporting Criteria").

### **Management Responsibilities**

Management of the Company is responsible for:

- selecting or establishing suitable criteria for preparing the Identified Sustainability Information, taking into account, if any, applicable law and regulations related to reporting the Identified Sustainability Information;
- the preparation of the Identified Sustainability Information in accordance with the Reporting Criteria;
- designing, implementing and maintaining internal control over information relevant to the preparation of the Identified Sustainability Information that is free from material misstatement, whether due to fraud or error.

## **Our Responsibilities**

We are responsible for:

- planning and performing the engagement to obtain limited assurance about whether the Identified Sustainability Information is free from material misstatement, whether due to fraud or error;
- forming an independent conclusion, based on the procedures we have performed and the evidence we have obtained; and
- reporting our conclusion to the Directors of the Company.

As we are engaged to form an independent conclusion on the Identified Sustainability Information as prepared by management, we are not permitted to be involved in the preparation of the Identified Sustainability Information as doing so may compromise our independence.

## **Professional Standards Applied**

We performed our limited assurance engagement in accordance with the professional guidance issued by the French Institute of Statutory Auditors (Compagnie Nationale des Commissaires aux Comptes) applicable to such engagement and the International Standard on Assurance Engagements 3000 (Revised), *Assurance Engagements other than Audits or Reviews of Historical Financial Information* issued by the International Auditing and Assurance Standards Board.

## **Our Independence and Quality Control**

We have complied with the independence and other ethical requirements of the French Code of Ethics for Statutory Auditors (*Code de Déontologie*) as well as the provisions set forth in Article L.821-28 of the French Commercial Code (*Code de Commerce*) and the *International Code of Ethics for Professional Accountants (including International Independence Standards)* issued by the International Ethics Standards Board for Accountants (IESBA Code) which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

Our firm applies International Standard on Quality Management 1, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

Our work was carried out by an independent and multidisciplinary team with experience in sustainability reporting and assurance.

## **Summary of the Work we Performed as the Basis for our Assurance Conclusion**

We are required to plan and perform our work to address the areas where we have identified that a material misstatement of the Identified Sustainability Information is likely to arise. The procedures we performed were based on our professional judgement. In carrying out our limited assurance engagement on the Identified Sustainability Information, we :

- evaluated the suitability in the circumstances of Air Liquide's use of the Reporting Criteria;
- through inquiries, including inspection of Minutes of the 2022 - 2024 meetings of the *Sustainable Finance Working Group*, obtained an understanding of the process for selecting, collecting and reporting the Identified Sustainability Information;
- obtained the internal listing of Eligible Green Projects to which the proceeds from the Green Bond were allocated as of December 31, 2023, and confirmed that this was consistent with the section 4 of Air Liquide's *Green Bond Allocation & Impact Reporting (May 2024)*;
- performed limited substantive testing on a selective basis of the Identified Sustainability

- Information to verify that the identified Eligible Green Projects were in line with the Reporting Criteria and that the allocated amounts had been appropriately measured, recorded, collated and reported, including:
  - inspecting the purpose of Eligible Green Projects to confirm that the use of proceeds was consistent with the Reporting Criteria; and
  - performing the necessary reconciliations between the allocated amounts and the accounting records, verifying that the information agrees with the data used to prepare the consolidated financial statements for the year ended December 31, 2023, December 31, 2022, December 31, 2021, December 31, 2020 or December 31, 2019.
- assessed the appropriateness of the presentation of the Identified Sustainability Information in the section 4 of Air Liquide's *Green Bond Allocation & Impact Reporting (May 2024)*.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement.

Neuilly-sur-Seine, June 18, 2024

The Statutory Auditor

PricewaterhouseCoopers Audit

Sébastien Lasou

Partner





May 2024

## Group Financing and Rating



Guillaume Serey

[guillaume.serey@airliquide.com](mailto:guillaume.serey@airliquide.com)

+33 (0)1 40 62 56 70

Thomas Lemée

[thomas.lemee@airliquide.com](mailto:thomas.lemee@airliquide.com)

+33 (0)1 40 62 58 25

Chloé Audrin

[chloe.audrin@airliquide.com](mailto:chloe.audrin@airliquide.com)

+33 (0)1 40 62 56 64

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

*Follow us on Twitter @AirLiquideGroup*

Corporate Headquarters:

75, Quai d'Orsay

75321 Paris Cedex 07