Air Liquide

PRESS RELEASE
AND ACTIVITY REPORT

Paris, July 28, 2022

H1 2022 Results:

Strong performance in a complex environment and confirmed resilience of the business model

Key Figures (in millions of euros)	H1 2022	2022/2021 as published	2022/2021 comparable [a]
Group Revenue	**14,207**	**+31.0%**	**+7.7%**
of which Gas & Services	*13,600*	*+31.4%*	*+7.2%*
Operating Income Recurring (OIR)	**2,286**	**+17.4%**	**+9.2%**
Group OIR Margin	16.1%	-190 bps	
Variation excluding energy [b]		*+50 bps*	
Gas & Services OIR Margin	17.7%	-230 bps	
Variation excluding energy [b]		*+50 bps*	
Net Profit (Group Share)	1,305	+5.3%	
Net Profit Recurring (Group Share) [c]	1,551	+25.1%	
Variation Net Profit Recurring (Group Share) excluding currency impact [b]		*+20.4%*	
Earnings per Share (in euros)	**2.50**	**+5.0%**	
Cash flow from operating activities before changes in net working capital	2,907	+17.1%	
Net Debt	€12.0 bn		
Return on Capital Employed after tax - ROCE	9.0%	-50 bps	
Recurring ROCE [d]	**9.7%**	+70 bps	

(a) Change excluding the currency, energy (natural gas and electricity) and significant scope impacts, see reconciliation in appendix.
(b) See reconciliation in appendix.
(c) Excluding exceptional and significant transactions that have no impact on the operating income recurring, see reconciliation in appendix.
(d) Based on the recurring net profit, see reconciliation in appendix.

Commenting on the 1st half of 2022, **François Jackow, Chief Executive Officer of the Air Liquide Group, said:**

*"The Group delivered a **very strong performance** during the 1st half of 2022. This is even more **remarkable** considering the particularly complex macroeconomic and geopolitical context. **Revenue reached 14.2 billion euros, an increase of +7.7% on a comparable basis**. As published, revenue was up +31%, reflecting the sharp increase in energy prices in particular. Growth was achieved across all activities: **Gas & Services**, which represents 96 % of revenue, **Engineering & Construction** and **Global Markets & Technologies**.*

*In Gas & Services, **all geographies improved**, driven mainly by **Industrial Merchant** and **Electronics**, which enjoyed strong growth particularly in Asia. In Industrial Merchant, value creation and dynamic price management allowed the Group to transfer the increase in costs, while in Large Industries, the increase in energy prices is contractually passed on to customers.*

*In this context, the Group's **operating margin** improved again significantly by **+50 basis points**, excluding the energy impact. The Group also continues taking efficiency measures, notably through targeted industrial investments.*

Recurring net profit[(1)] *reached 1.6 billion euros, an increase of* ***+20.4% excluding the currency impact****. Net profit (Group share) was 1.3 billion euros, an increase as published of +5.3% despite a non-recurring provision on our assets in Russia. Cash flow remained high at 23.5%*[(2)] *of sales. The balance sheet is solid, with a net debt-to-equity ratio*[(3)] *down again to 46%. Recurring ROCE*[(4)] *continued to improve and reached 9.7% at the end of June, in line with the target of 10% by 2023.*

The Group maintained ***a strong investment momentum, which is a guarantee of future growth and the expression of its commitment to fight climate change.*** *With more than 40% of projects linked to the energy transition, 12-month investment opportunities are numerous and total 3.3 billion euros.* ***Investment decisions were high and reached 1.8 billion euros*** *this half-year. The project backlog, at 3 billion euros, remains high.*

Given the strong performance in the 1st half of 2022, combined with a more resilient business model and a clear strategic plan, as well as committed teams, whose dedication I commend, we are entering the second half of the year.

In 2022, assuming no significant economic disruption, Air Liquide is confident in its ability to further increase its operating margin and to deliver recurring net profit growth at constant exchange rates[(5)]***."***

(1) *Excluding exceptional and significant transactions that have no impact on the operating income recurring.*
(2) *Cash Flow from Operations before changes in WCR on Sales excluding energy passthrough impact.*
(3) *Adjusted for dividend seasonality.*
(4) *Recurring ROCE based on Recurring Net Profit.*
(5) *Operating margin excluding energy passthrough impact. Recurring net profit excluding exceptional and significant transactions that have no impact on the operating income recurring, and excluding the impact of any US tax reform in 2022.*

Highlights of the 1st half 2022

Corporate:

- Implementation of a **new governance** within Air Liquide, in line with previous announcements. On June 1, **François Jackow became the Group's Chief Executive Officer**, while **Benoît Potier remains Chairman of the Board of Directors**. François Jackow was also appointed Board Director of Air Liquide by the Group's Shareholders during the General Meeting on May 4.
- Launch of **ADVANCE**, the new **Air Liquide strategic plan for 2025**, which places **sustainable development at the heart of the Group's strategy** and combines **financial and extra-financial performance**.
- **Mobilization of the Group to support victims of the war in Ukraine, notably through the Air Liquide Foundation.**
- **Sale of Industrial Merchant business located in the United Arab Emirates and Bahrain.**

Sustainable Development:

- **Validation by the Science Based Targets initiative (SBTi) of Air Liquide's target to reduce scope 1 & 2 CO_2 emissions by 2035** as qualified and aligned with climate science.
- Publication of Air Liquide's first **Sustainable Development Report**, which sets out the Group's ambitions for Sustainable Development and its 2021 extra-financial results.
- Attribution of **"A-" rating by the CDP in both categories of climate change and water management**. This rating recognizes the **"Leadership Level" of the Group's commitment to the environment.**
- Signature of a **long-term renewable energy Power Purchase Agreement (PPA)** with Vattenfall in the Netherlands for offshore wind capacity of around 115 MW, currently under construction. This is the **biggest PPA of its kind signed by Air Liquide** in the world to date.
- Signature of a 10-year agreement with **Shell Energy Europe Limited (SEEL)** for the **purchase of renewable energy** to power industrial and medical gas production operations **in the north east of Italy**.
- In the United States, construction of Air Liquide's **largest biomethane production plant in the world**.

Decarbonizing the industry:

- Selection of the **Air Liquide and EQIOM** project by the **European Innovation Fund** with the aim to transform the EQIOM plant near Dunkirk, France, into **one of the first carbon-neutral cement plants in Europe**.

- Memorandum of Understanding with **Lhoist** to **decarbonize their lime production unit** located in Réty, in the Hauts-de-France region, using Air Liquide's proprietary **Cryocap^{TM} carbon capture technology**.
- Selection by the **European Innovation Fund of the Kairos@C project**, jointly developed by **Air Liquide and BASF**, with the objective to develop **the world's largest cross-border** carbon capture and storage (CCS) value chain project around the port of Antwerp.
- **Memorandum of Understanding signed with Eni** to decarbonize hard-to-abate industries in the Mediterranean Basin.
- **Agreement signed with Sogestran** to develop **shipping solutions for carbon management**, as part of carbon capture and storage projects.

Low-carbon hydrogen:

- **Support of the French government to the Air Liquide Normand'Hy project** to **produce renewable hydrogen** on a large scale. This project will have an initial capacity of 200 MW and will contribute to the creation of a French and European low-carbon hydrogen industry, as well as to the decarbonization of the Normandy industrial basin.
- Creation **of a joint venture with Siemens Energy dedicated to the series production of industrial scale renewable hydrogen electrolyzers in Europe**. One of this joint venture's first projects will be the Air Liquide Normand'Hy electrolyzer project.
- Memorandum of Understanding with **CaetanoBus and Toyota Motor Europe to provide integrated hydrogen mobility solutions** (development of infrastructure and fleets of light- and heavy-duty vehicles).
- **Memorandum of Understanding signed with Airbus, Incheon Airport and Korean Air** to study **the use of hydrogen at Incheon International Airport**.
- Plan **with Groupe ADP** to create the **first engineering joint venture** to accompany **airports in their projects to integrate hydrogen in their infrastructure**.
- Creation of a joint venture with **Lotte Chemical**, a major player in Korea, to **develop the hydrogen supply chain for mobility markets in South Korea.**

Electronics & Industry:

- Within the context of **long-term contracts** with two **world leaders in semiconductors** for the supply of ultra-high purity industrial gases **in Japan**, Air Liquide has begun a staged investment of **more than 300 million euros** in four state-of-the-art production plants.
- **Signature of long-term agreements to supply a semiconductor manufacturing site in Arizona, United States.** As part of this agreement, **Air Liquide will invest nearly 60 million US dollars** to build and operate onsite plants and systems.
- Long-term contract **with EZZ Steel in Egypt**, under which **Air Liquide Egypt will invest around 80 million US dollars** in building an Air Separation Unit (ASU). This ASU will reinforce the Group's leadership in the Ain Sokhna industrial basin.
- **Increased presence in India** with an investment of around 40 million euros in a new **ASU dedicated to Industrial Merchant activities**, in the state of Uttar Pradesh in northern India.

Group revenue totaled **14,207 million euros** in the 1st half of 2022, a **strong comparable growth of +7.7%**. Sales were up +7.5% on a comparable basis during the 2nd quarter of 2022 compared with the 2nd quarter of 2021. Group **revenue as published** increased significantly by **+31.0%** during the 1st half, with a very high energy impact of +16.8% as well as favorable currency (+5.8%) and significant scope (+0.7%) impacts.

This performance was delivered in a challenging context of exceptionally high energy prices, strong inflation, strain on supply chains and the war in Ukraine. The Group benefited from a **solid business model and diversity of business reach in terms of geographies, businesses, end-markets and customers** which ensured a **resilient performance** and allowed the Group to **take advantage of all growth opportunities.** Its **core positioning in growth markets of the future** (in particular the energy transition, Semiconductors and Healthcare) reinforces these attributes.

Gas & Services revenue amounted to **13,600 million euros** during the 1st half, representing an increase of **+7.2%** on a comparable basis. **Sales as published** for the 1st half of 2022 showed extremely strong growth of **+31.4%**, with a very high energy impact at +17.6% as well as positive currency (+5.9%) and significant scope (+0.7%) impacts.

- Gas & Services revenue in the **Americas** reached **5,017 million euros** in the 1st half of 2022, representing a very strong increase of **+9.2%** on a comparable basis. Large Industries was up +5.3%, driven by solid demand and the start-up of new units. The marked increase in prices contributed significantly to the high sales growth in Industrial Merchant (+11.6%). Healthcare revenue was up +2.2%, led by proximity care in the United States and Home Healthcare in Latin America, despite a decline in medical oxygen sales for the treatment of covid-19. Finally, all business segments within Electronics contributed to the particularly dynamic growth (+8.2%).

- Revenue in **Europe** was up **+6.4%** on a comparable basis during the 1st half of 2022 and reached **5,424 million euros.** This strong growth was contrasted across the business lines in a context of exceptionally high energy prices and the war in Ukraine. Growth accelerated in Industrial Merchant, driven by record price increases, and reached a particularly high of +22.9% in the 1st half, offsetting the -7.4% decline in Large Industries sales. Despite a high basis of comparison due to the covid-19 pandemic in 2021, Healthcare sales were up +3.3%, driven by the momentum in Home Healthcare.

- Sales in **Asia-Pacific** were up **+5.5%** on a comparable basis in the 1st half of 2022 and totaled **2,746 million euros**, driven by particularly dynamic growth in the Electronics business (+15.8%). Covid-19 related lockdowns in China during the 2nd quarter had an impact on demand in other business lines: Large Industries sales were stable (-0.2%) in the 1st half, whereas Industrial Merchant sales were up +2.5%, driven by the acceleration in price increases during the half-year.

- Revenue in the **Middle East and Africa** totaled **413 million euros**, representing a slight increase (**+0.9%**) on a comparable basis with the 1st half of 2021. Volumes increased sharply in South Africa with the integration of the **16 Sasol air separation units** whose sales were recognized as part of the **significant scope impact**, and hence excluded from comparable growth. Sales were stable over the half-year in Industrial Merchant, with business line growth offset by two small divestitures in the Middle East.

Large Industries sales were contrasted by region and overall were down slightly (**-1.4%**) on a comparable basis with the 1st half of 2021: sales enjoyed sustained growth in the Americas, were stable in Asia, and were down in Europe. The **Industrial Merchant** business posted strong revenue growth of **+12.7%** in the 1st half, driven by the **acceleration** of **pricing** over the half-year and by solid volumes. **Electronics** sales growth momentum was particularly dynamic, at **+15.5%**, with a strong contribution from all business segments. In **Healthcare**, despite a decline in medical oxygen volumes for the treatment of covid-19, revenue was up **+2.3%** driven by the strong development in Home Healthcare, notably in Europe, and in proximity care in the United States.

Consolidated revenue from **Engineering & Construction** totaled **221 million euros** in the 1st half of 2022, representing strong comparable growth of **+29.0%**. Order intake totaled **526 million euros**, in line with the high level recorded in the 1st half of 2021.

Global Markets & Technologies sales totaled **386 million euros** in the 1st half, representing marked comparable growth of **+13.8%**. The biogas business enjoyed strong momentum, benefiting from the ramp-up of new production units in Europe and the United States, the increase in sales prices relating to the spike in energy price, and equipment sales in the United States.

Efficiencies [1] amounted to **167 million euros** and represented a saving of 2.1% of the cost base. In a context of high inflation unfavorable to procurement efficiencies, the priority for the teams is to limit cost increases and transfer them to sales prices.

Group **Operating Income Recurring (OIR)** reached **2,286 million euros** in the 1st half of 2022, an increase of **+17.4%** and of +9.2% on a comparable basis, which is significantly higher than the comparable sales growth of +7.7%.

The **operating margin** (OIR to revenue ratio) stood at **16.1%** as published, representing a -190 basis point decline compared with the 1st half of 2021 due mainly to the sharp increase in energy costs which are contractually passed through to Large Industries customers. This therefore has a dilutive impact on the published margin (without impacting operating income in absolute value). **Excluding the energy impact**, the operating margin **improved very significantly by +50 basis points** compared with the 1st half of 2021. This performance integrates the dilutive impact of strong inflation on costs other than energy costs and which is transferred to sales prices.

The **net profit (Group share)** amounted to **1,305 million euros** in the 1st half of 2022, an increase of **+5.3%** as published. Excluding the exceptional provision on the Group's industrial assets in Russia, which has no impact on cash, a provision for risks in the Engineering & Construction business, and an exceptional income from Air Liquide taking control of a joint venture in Asia-Pacific, **recurring net profit (Group share)**[2] reached **1,551 million euros**. It increased by +25.1% and **+20.4% excluding the currency impact**, which is significantly higher than the comparable sales growth of +7.7% over the half-year. **Net earnings per share** rose by **+5.0%** compared with the 1st half of 2021, in line with the increase in net profit (Group share). These stood at **2.50 euros per share** compared with 2.38 euros[3] per share in the 1st half of 2021.

Cash flow from operating activities before changes in net working capital amounted to **2,907 million euros** during the 1st half of 2022, representing a sharp increase of **+17.1%** and +11.5% excluding the currency impact. This corresponds to a high level of **20.5% of sales** and **23.5% excluding the energy impact**, and represents a **+60 basis point improvement excluding the energy impact** compared with the 1st half of 2021.

Gross industrial capital expenditure amounted to **1,574 million euros**, an increase of +9.4% compared with the 1st half of 2021 and of +4.7% excluding the currency impact. This represented **12.7% of sales excluding the energy impact**, reflecting dynamic project development activity. **Financial investments** stood at **54 million euros** compared with 569 million euros for the 1st half of 2021, including approximately 480 million euros for the acquisition of 16 Sasol air separation units in South Africa.

The **net debt-to-equity ratio**, adjusted for the seasonal effect of the dividend payment, stood at **46.0%**, down sharply compared with 56.1% at the end of June 2021.

The **return on capital employed after tax (ROCE)** was 9.0% for the 1st half of 2022. **Recurring ROCE**[4] stood at **9.7%**, an increase of **+70 basis points** compared with the 1st half of 2021.

In the 1st half of 2022, **industrial and financial investment decisions** totaled **1,796 million euros**. This compares to 1,429 million euros during the 1st half of 2021, excluding the acquisition of Sasol's Air Separation Units (ASUs) in South Africa for approximately 480 million euros.

The **investment backlog** remained high at **3.0 billion euros**.

[1] *See definition in the appendix.*
[2] *See definition and reconciliation in the appendix.*
[3] *Adjusted following the free share attribution in June 2022.*
[4] *See definition and reconciliation in the appendix.*

The **additional contribution to revenue** of unit start-ups and ramp-ups totaled **213 million euros** over the 1st half of 2022. **In 2022, the additional contribution to revenue** of unit start-ups and ramp-ups is expected to be **between 410 and 435 million euros.**

The **12-month portfolio of investment opportunities** stood at **3.3 billion euros** at the end of June 2022. Projects related to the **energy transition** accounted for more than 40% of the portfolio. These notably included projects for renewable hydrogen production by water electrolysis, facilities for the capture of CO_2 emitted by the Group's or its customers' units, as well as hydrogen mobility projects in Europe and Asia. The share of the **Electronics** business in the portfolio of opportunities increased and represented around 30%.

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Air Liquide's target to **reduce its Scope 1 & 2 CO_2 emissions** by 2035 has been **validated by the Science Based Targets initiative (SBTi)** as qualified and aligned with climate science. The Group is the **first in its industry to obtain validation** from the Science Based Targets Initiative. This approval represents an important milestone towards the Group's ambition to reach carbon neutrality by 2050.

As previously announced, a **new governance** has been implemented within Air Liquide. Since **June 1, 2022, Benoît Potier** remained **Chairman of the Board of Directors** and **François Jackow**, became **Chief Executive Officer for the Group**.

The Air Liquide Board of Directors met on July 27, 2022. During this meeting, the **Board reviewed the condensed consolidated financial statements for the first half** ending June 30, 2022. Limited review procedures were completed with respect to the condensed consolidated interim financial statements, and **an unqualified review report is in the process of being issued** by the statutory auditors.

Table of Contents of the activity report

H1 2022 PERFORMANCE

Unless otherwise stated, all variations in revenue outlined below are on a **comparable basis**, excluding currency, energy (natural gas and electricity) and significant scope impacts.

Key Figures

(in millions of euros)	H1 2021	H1 2022	2022/2021 published change	2022/2021 comparable change [(a)]
Total Revenue	**10,846**	**14,207**	**+31.0%**	**+7.7%**
Of which Gas & Services	*10,350*	*13,600*	*+31.4%*	*+7.2%*
Operating Income Recurring (OIR)	1,948	2,286	+17.4%	+9.2%
Group OIR Margin	18.0%	16.1%	-190 bps	
Variation excluding energy [(b)]			*+50 bps*	
Other Non-Recurring Operating Income and Expenses	(40)	(270)		
Net Profit (Group Share)	1,239	1,305	+5.3%	
Net Profit Recurring (Group Share) [(c)]	1,239	1,551	+25.1%	
Variation Net Profit Recurring (Group Share) excluding currency impact [(b)]			*+20.4%*	
Earnings per Share (in euros)	**2.38** [(d)]	**2.50**	**+5.0%**	
Cash flow from operating activities before changes in net working capital	2,483	2,907	+17.1%	
Net Capital Expenditure [(e)]	1,913	1,547		
Net Debt	€12.0 bn	€12.0 bn		
Net Debt to Equity ratio [(f)]	56.1%	46.0%		
Return on Capital Employed after tax - ROCE	9.5%	9.0%	-50 bps	
Recurring ROCE [(g)]	**9.0%**	**9.7%**	**+70 bps**	

(a) Change excluding the currency, energy (natural gas and electricity) and significant scope impacts, see reconciliation in appendix.
(b) See reconciliation in appendix.
(c) Excluding exceptional and significant transactions that have no impact on the operating income recurring, see reconciliation in appendix.
(d) Adjusted following the free share attribution in June 2022.
(e) Including transactions with minority shareholders.
(f) Adjusted to spread the dividend payment in the 1st half out over the full year.
(g) Based on the recurring net profit, see reconciliation in appendix.

Income Statement

REVENUE

Revenue *(in millions of euros)*	**H1 2021**	**H1 2022**	**2022/2021 published change**	**2022/2021 comparable change**
Gas & Services	10,350	13,600	+31.4%	+7.2%
Engineering & Construction	169	221	+31.1%	+29.0%
Global Markets & Technologies	327	386	+17.9%	+13.8%
TOTAL REVENUE	**10,846**	**14,207**	**+31.0%**	**+7.7%**

Revenue by quarter (in millions of euros)	**Q1 2022**	**Q2 2022**
Gas & Services	6,590	7,010
Engineering & Construction	108	113
Global Markets & Technologies	189	197
TOTAL REVENUE	**6,887**	**7,320**
2022/2021 Group published change	**+29.1%**	**+32.8%**
2022/2021 Group comparable change	**+7.9%**	**+7.5%**
2022/2021 Gas & Services comparable change	**+7.1%**	**+7.3%**

Group

Group revenue totaled **14,207 million euros** in the 1st half of 2022, **a strong comparable growth of +7.7%**. Sales were up +7.5% during the 2nd quarter of 2022 compared with the 2nd quarter of 2021.

This performance was delivered in a challenging context of exceptionally high energy prices, strong inflation, strain on supply chains and the war in Ukraine. The Group benefited from a **solid business model and diversity of business reach in terms of geographies, businesses, end-markets and customers** which ensured a **resilient performance** and allowed the Group to **take advantage of all growth opportunities.** Its **core positioning in growth markets of the future** (in particular the energy transition, Semiconductors and Healthcare) reinforces these attributes.

Engineering & Construction sales enjoyed strong growth of **+29.0%** compared with the 1st half of 2021, which reflects the increase in order intake in recent quarters. **Global Markets & Technologies** revenue was up **+13.8%**, mainly driven by strong momentum in the biogas business.

Group **revenue as published** increased significantly by **+31.0%** during the 1st half, with a very high energy impact of +16.8% as well as favorable currency (+5.8%) and significant scope (+0.7%) impacts.

Gas & Services

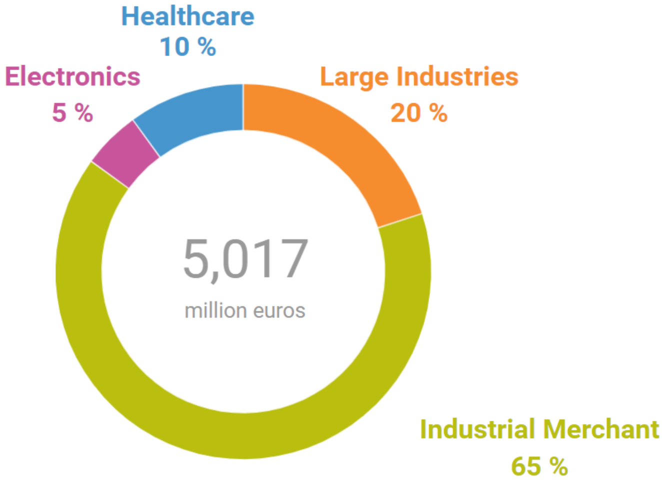
Gas & Services revenue amounted to **13,600 million euros** during the 1st half, representing an increase of **+7.2%** on a comparable basis. **Large Industries** sales were contrasted by region and overall were down slightly (**-1.4%**) compared with the 1st half of 2021: sales enjoyed sustained growth in the Americas, were stable in Asia, and were down in Europe. The **Industrial Merchant** business posted strong revenue growth of **+12.7%** in the 1st half, driven by the **acceleration** of **pricing** over the half-year and by solid volumes. **Electronics** sales growth momentum was particularly dynamic, at **+15.5%**, with a strong contribution from all business segments. In **Healthcare**, despite a decline in medical oxygen volumes for the treatment of covid-19, revenue was up **+2.3%** driven by the strong development in Home Healthcare, notably in Europe, and in proximity care in the United States. **Sales as published** for the 1st half of 2022 showed extremely strong growth of **+31.4%**, with a very high energy impact at +17.6% as well as positive currency (+5.9%) and significant scope (+0.7%) impacts.

Revenue by geography and business line *(in millions of euros)*	**H1 2021**	**H1 2022**	**2022/2021 published change**	**2022/2021 comparable change**
Americas	4,059	5,017	+23.6%	+9.2%
Europe	3,657	5,424	+48.3%	+6.4%
Asia-Pacific	2,326	2,746	+18.1%	+5.5%
Middle East & Africa	308	413	+34.0%	+0.9%
GAS & SERVICES REVENUE	**10,350**	**13,600**	**+31.4%**	**+7.2%**
Large Industries	2,916	4,940	+69.4%	-1.4%
Industrial Merchant	4,595	5,510	+19.9%	+12.7%
Healthcare	1,835	1,925	+4.9%	+2.3%
Electronics	1,004	1,225	+21.9%	+15.5%

Americas

Gas & Services revenue in the Americas reached **5,017 million euros** in the 1st half of 2022, representing a very strong increase of **+9.2%**. Large Industries was up +5.3%, driven by solid demand and the start-up of new units. The marked increase in prices contributed significantly to the high sales growth in Industrial Merchant (+11.6%). Healthcare revenue was up +2.2%, led by proximity care in the United States and Home Healthcare in Latin America, despite a decline in medical oxygen sales for the treatment of covid-19. Finally, all business segments within Electronics contributed to the particularly dynamic growth (+8.2%).

Americas Gas & Services H1 2022 Revenue



- **Large Industries** revenue increased by **+5.3%** during the 1st half. Air gas volumes climbed markedly on the United States Gulf Coast, driven by solid demand from Chemicals and Steel customers and from the start-up of two ASUs during the 2nd quarter. Benefiting from the ramp-up of units, there was strong momentum in hydrogen sales in Latin America which offset the impact of several maintenance turnarounds in North America. Cogeneration unit electricity sales were down in the United States during the 2nd quarter, compared with very high sales in 2021.

- In **Industrial Merchant**, the strong sales growth of **+11.6%** in the 1st half was driven by the acceleration in **pricing** which stood at **+11.4%**. Volumes were stable, with the increase in volumes of liquified gases, cylinders and hardgoods offset by the decline of helium volumes. Sales were up across all markets, in particular in Fabrication and in the Energy and Materials sectors.

- **Healthcare** revenue was up **+2.2%** in the 1st half of 2022, despite the major decline in medical oxygen volumes for the treatment of covid-19 compared with 2021. Sales in Medical gases rose sharply in the United States, supported by strong momentum in proximity care and an acceleration of pricing. In Latin America, Home Healthcare sales growth partially offset medical gas volumes that were weaker than in 2021, at the peak of the pandemic.

- **Electronics** posted sales growth of **+8.2%**, supported by the momentum across all business segments. The ramp-up of several production plants contributed to the strong increase in carrier gases sales. High Equipment and Installation sales also contributed to significant growth for the business in the United States.

Americas

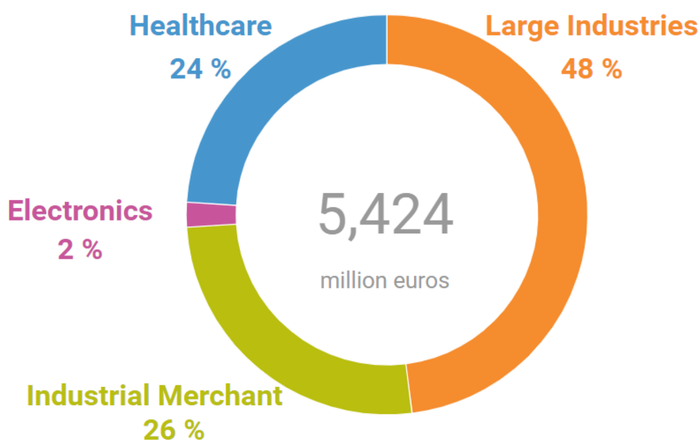
- Air Liquide announces a **long term agreement** to supply ultra high purity hydrogen, helium, and carbon dioxide to one of the world's largest semiconductor manufacturers. The Group plans to invest nearly **50 million euros** to build, own and operate onsite plants and systems at a new manufacturing site in Phoenix, Arizona, in support of this new agreement. Operations and supply are expected to start in the second half of 2022.

- Air Liquide officially opened its **largest liquid hydrogen production and logistics infrastructure facility** in North Las Vegas, **Nevada**. The facility aims to **supply the growing needs for hydrogen mobility**, but will also allow to provide hydrogen to a wide array of industries.

Europe

Revenue in Europe was up **+6.4%** during the 1st half of 2022 and reached **5,424 million euros.** This strong growth was contrasted across business lines in a context of exceptionally high energy prices and the war in Ukraine. Growth accelerated in Industrial Merchant, driven by record price increases, and reached a particularly high of +22.9% in the 1st half, offsetting the -7.4% decline in Large Industries sales. Despite a high basis of comparison due to the covid-19 pandemic in 2021, Healthcare sales were up +3.3%, driven by the momentum in Home Healthcare.

Europe Gas & Services H1 2022 Revenue



- Impacted by the war in Ukraine and a strong and steep increase of energy prices, **Large Industries** revenue was down **-7.4%** in the 1st half. The beginning of the slowdown seen toward the end of the 1st quarter, notably in Steel, continued during the 2nd quarter across all sectors. Volumes were affected by weaker demand and numerous maintenance turnarounds. Moreover, in the 2nd quarter, certain refineries used lighter crude oils which require lower amounts of hydrogen.

- The **Industrial Merchant** business line saw an exceptionally high level of sales growth of **+22.9%**, driven by a record **pricing** of **+20.9%**. Proactive price campaigns have fully demonstrated their effectiveness in an inflationary context. Volumes, which were solid in the 1st quarter, continued to grow slightly during the 2nd quarter, despite softening bulk volumes. Sales increased across all markets, particularly in the Food, Fabrication, Materials and Energy sectors.

- Despite a high basis of comparison in 2021, **Healthcare** revenue was up **+3.3%** in the 1st half. Oxygen and medical equipment sales were down compared to the record-high for the treatment of covid-19 in the 1st half of 2021. Growth was nonetheless strong in Home Healthcare, particularly for diabetes treatment. The business also benefited from the contribution from an acquisition completed in Poland during the 4th quarter of 2021. Finally, specialty ingredients sales actively contributed to the growth in business.

Europe

- Air Liquide and **Lhoist** have signed a Memorandum of Understanding (MoU) with the aim to **decarbonize Lhoist's lime production plant** located in Réty, in the Hauts-de-France region, using Air Liquide's innovative and proprietary **Cryocap™ carbon capture technology**. In this context, Air Liquide and Lhoist **obtained funding** from the European Innovation Fund for large scale projects. This partnership is a new step in the **creation of a low-carbon industrial ecosystem** in the broader Dunkirk area.

- Air Liquide has signed a **ten-year contract** with **Shell Energy Europe Limited** (SEEL) for the **purchase of renewable energy** to power industrial and medical gas production operations in the North East of **Italy**. The solar photovoltaic installed capacity necessary to deliver this energy is 34 MW.

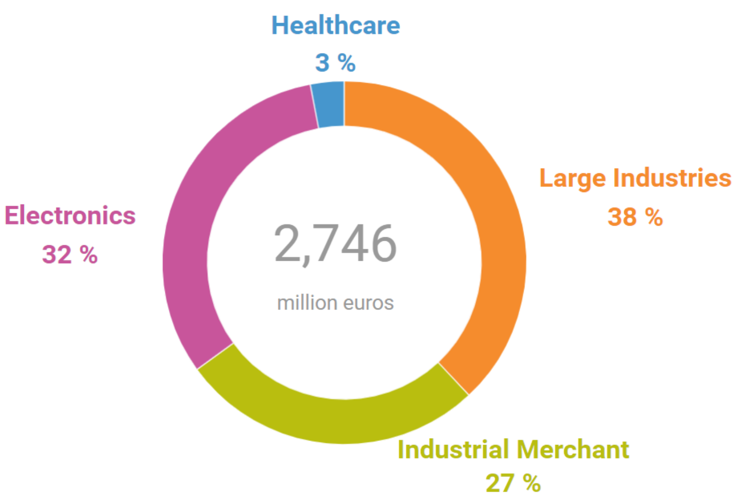
- Air Liquide has signed with **Vattenfall** in **the Netherlands** its **biggest long-term Power Purchase Agreement** (PPA) to date with approximately 115 MW of new offshore wind electricity. This PPA comes in addition to a previous agreement announced with Vattenfall in March 2021, expanding the long-term partnership between the two groups. **It reaffirms Air Liquide's commitment to lead the way in decarbonizing the European industry while lowering its own carbon footprint**, in line with its Sustainable Development Objectives.

- The Elygator **electrolyzer** project, which has a similar size as the Normand'Hy project (**200 MW**), has been selected for **funding by the European Innovation Fund**. This unit will be located in Terneuzen and will produce large quantities of **renewable hydrogen**, hence supporting the decarbonization of the **industrial** and the **mobility markets** in the **Netherlands** and in **Belgium**. The Elygator project is a new landmark in the Group's objective to invest in 3 GW electrolysis capacity by 2030.

Asia-Pacific

Sales in Asia Pacific were up **+5.5%** in the 1st half of 2022 and totaled **2,746 million euros**, driven by particularly dynamic growth in the Electronics business (+15.8%). Covid-19 related lockdowns in China during the 2nd quarter had an impact on demand in other business lines: Large Industries sales were stable (-0.2%) in the 1st half, whereas Industrial Merchant sales were up +2.5%, driven by the acceleration in price increases during the half-year.

Asia-Pacific Gas & Services H1 2022 Revenue



- **Large Industries** sales, improving sequentially, were stable (**-0.2%**) in the 1st half. Growth slowed in China, in particular due to residual energy control measures during the 1st quarter, and to covid-related lockdowns during the 2nd quarter. Business was weak in the rest of Asia.

- **Industrial Merchant** revenue was up **+2.5%**. The **pricing impact** (**+5.0%** in the 1st half) increased across the region and reached **+6.9%** in the 2nd quarter. In China, following a marked increase in sales during the 1st quarter (+9%), notably driven by the development of packaged gases and the contribution of small on-site gas generator start-ups, growth slowed considerably during the 2nd quarter due to covid-19 related lockdowns. The situation was contrasted in the rest of Asia, with sales down in Japan but up sharply in Singapore and enjoying solid growth in Australia. Sales improved across the major business sectors, particularly in the Food and Technology markets, whereas sales to craftsmen were weaker.

- **Electronics** revenue momentum was strong at **+15.8%**, with all business segments posting double-digit growth during the 1st half. Carrier gases benefited from the contribution from two start-ups in China and the ramp-up of several production plants in Korea, Singapore and Taiwan. Advanced Materials sales were high, in particular in Singapore and China. Specialty Materials sales were boosted by the increase in the price of rare gases. Finally, Equipment and Installations also contributed significantly to growth.

Asia-Pacific

- Two major Semiconductor market leaders have awarded Air Liquide **long-term contracts** for the supply of **ultra-high purity industrial gases in Japan**. To fulfill these contracts, Air Liquide has begun a staged investment of **more than 300 million euros** in **four state-of-the-art gas plants** in key Electronics basins to produce nitrogen and other high purity gases.

- Air Liquide Korea and **Lotte Chemical** entered a **joint venture** to scale-up the **hydrogen supply chain** for **mobility** markets in **South Korea**. The companies will co-invest through the joint venture in a new generation of **large scale hydrogen filling centers** in Daesan and Ulsan. They also expect **multiple synergies** and envision the development of several opportunities to foster the rise of the hydrogen economy in Korea.

- **Shanghai Chemical Industry Park Industrial Gases Co., Ltd (SCIPIG)**, a subsidiary of Air Liquide, will invest more than **200 million euros** to build **two hydrogen production units** and related infrastructure in Shanghai Chemical Industry Park (SCIP). These units will bring significant environmental benefits, as they are designed to **replace current supply from a third party coal-based gasification unit**, **will be equipped with CO_2 capture and recycling technology** and will be connected to SCIPIG existing local network. These two units will come in addition to two other hydrogen units and four air separation units that SCIPIG already operates in the industrial park.

Middle East and Africa

Revenue in the Middle East and Africa totaled **413 million euros**, representing a slight increase (**+0.9%**) compared to the 1st half of 2021. Large Industries sales were up for the half-year: down in the 1st quarter, sales increased markedly during the 2nd quarter, driven by high oxygen volumes for the Steel segment in Egypt and strong hydrogen demand from customers in the Yanbu basin in Saudi Arabia. Volumes increased sharply in South Africa with the integration of the **16 Sasol air separation units** whose acquisition was finalized at the end of the 1st half of 2021: sales of **approximatively 72 million euros** in the 1st half-year were recognized as part of the **significant scope impact** (and hence excluded from comparable growth). Sales were stable over the half-year in Industrial Merchant, with the business line growth offset by two small divestitures in the Middle East. In Healthcare, revenue was down due to lower medical gas volumes for the treatment of covid-19. Sales in the Home Healthcare business grew in Saudi Arabia, particularly in diabetes treatment.

Middle East and Africa

- Air Liquide and **EZZ Steel**, one of the leading **steel** producers in the Middle East and Africa, have signed a **new long term agreement** for the supply of industrial gases to EZZ's new plant in Ain Sokhna, East of Cairo, **Egypt**. Air Liquide Egypt will invest around **80 million US dollars** in building an Air Separation Unit (ASU) to supply EZZ needs throughout the duration of the contract, as well as other customer needs in the basin.

Engineering & Construction

Consolidated revenue from Engineering & Construction totaled **221 million euros** in the 1st half of 2022, representing strong growth of **+29.0%** and reflecting the increase in order intake from third-party customers in recent quarters.

Order intake totaled **526 million euros**, in line with the high level recorded in the 1st half of 2021. Orders for the Group mainly included projects in Asia, notably nitrogen generators for the Electronics business and air separation units for Large Industries.

Engineering & Construction

- Air Liquide and **Siemens Energy** announced the creation of a **joint venture dedicated to the series production** of industrial scale **renewable hydrogen electrolyzers in Europe**. With two of the **global leading companies in their field combining their expertise**, this Franco-German partnership will enable the emergence of a sustainable hydrogen economy in Europe and foster a European ecosystem for electrolysis and hydrogen technology. **Production is expected to begin in the second half of 2023** and ramp-up to an annual production capacity of **3 GW by 2025**.

Global Markets & Technologies

Global Markets & Technologies sales totaled **386 million euros** in the 1st half, representing marked growth of **+13.8%**. The biogas business enjoyed strong momentum, benefiting from the ramp-up of new production units in Europe and the United States, the increase in sales prices relating to the spike in energy price, and equipment sales in the United States.

Order intake for Group projects and third-party customers reached **403 million euros**, up compared to 2021. This notably included 30 Turbo-Brayton LNG reliquefaction units, biogas processing equipment, hydrogen refueling stations and equipment for the electronics industry.

Global Markets & Technologies

- Air Liquide invested and will operate its **first biomethane production unit in China** by the end of 2022. Located in Huai'an City, in the Jiangsu Province, the unit will have a **production capacity of 75 GWh per year**. This project demonstrates a **circular economy and low-carbon approach**, in line with the Group's Sustainable Development Objectives and strategic plan ADVANCE.

- Air Liquide, **CaetanoBus and Toyota Motor Europe** have signed a Memorandum of Understanding with the aim of developing **integrated hydrogen solutions**. This will include **infrastructure** development and **vehicle fleets**, to accelerate the expansion of hydrogen mobility for both light and heavy-duty vehicles. The partnership reflects the shared ambition of the three partners to contribute to **decarbonizing transport** and accelerate the development of **local hydrogen ecosystems** for multiple mobility applications.

- With the ambition of creating the **first engineering joint venture dedicated to accompanying airports in their project to integrate hydrogen in their infrastructure**, **Air Liquide** and **Groupe ADP** are strengthening their collaboration. This announcement follows a memorandum of understanding signed in 2021 to carry out feasibility studies to **accompany the arrival of hydrogen-powered aircraft**. This partnership project demonstrates the Groups' shared ambition to act now to pave the way for **decarbonized air transport worldwide**.

OPERATING INCOME RECURRING

Operating income recurring before depreciation and amortization totaled **3,475 million euros**, an increase of **+16.0%** and +9.7% excluding the currency impact compared with the 1st half of 2021.

Purchases were up markedly by **+53.4% excluding currency impact**, mainly due to the exceptionally strong and rapid increase (+95% excluding the currency impact) of energy costs, which are contractually passed through to Large Industries customers. In a context of high inflation, **personnel costs** were up **+6.5% excluding the currency impact. Other operating expenses** increased by **+9.4% excluding currency impact** and notably included a marked increase in transport and maintenance costs. **Depreciation and amortization** reached **1,189 million euros**, representing an increase of **+7.1% excluding currency impact**, which reflected the impact of the start-up of new units, the integration of the 16 air separation units acquired from Sasol in June 2021, and Air Liquide taking control of a joint venture in Asia-Pacific.

Group **Operating Income Recurring (OIR)** reached **2,286 million euros** in the 1st half of 2022, an increase of **+17.4%** and of +9.2% on a comparable basis, which is significantly higher than the comparable sales growth of +7.7%. The **operating margin** (OIR to revenue ratio) stood at **16.1%** as published, representing a -190 basis point decline compared with the 1st half of 2021 due mainly to the sharp increase in energy costs which are contractually passed through to Large Industries customers. This therefore has a dilutive impact on the published margin (without impacting the operating income in absolute value). **Excluding the energy impact, the operating margin improved very significantly by +50 basis points** compared with the 1st half of 2021. This performance integrates the dilutive impact of strong inflation on costs other than energy costs and which is transferred to sales prices. This +50 basis points improvement therefore particularly reflected the Group's ability to rapidly transfer the exceptionally strong and brutal increase in energy costs and inflation in general to sales prices.

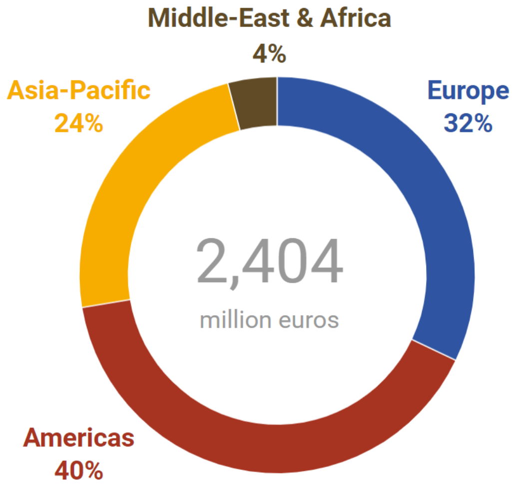
Efficiencies[5] amounted to **167 million euros** and represented a saving of 2.1% of the cost base. In a context of high inflation unfavorable to procurement efficiencies, the priority for the teams is to limit cost increases and transfer them to sales prices. **Industrial efficiencies** contributed more than 50% of total efficiencies and included energy efficiency projects in Large Industries and supply chain optimization projects in Industrial Merchant. The Group's **digital transformation** continued: in Large Industries with the connection of new units to remote operation centers (Smart Innovative Operations, SIO), in Industrial Merchant with the acceleration of tools implementation to optimize delivery routes (Integrated Bulk Operations, IBO) and in Healthcare with the deployment of remote patient monitoring platforms. The continued implementation of shared service centers and the global continuous improvement program contributed to efficiencies.

Portfolio and pricing management also supported margin improvement.

Gas & Services

Gas & Services operating income recurring totaled **2,404 million euros**, up **+16.3%** as published compared with the 1st half of 2021, and up **+8.8%** on a comparable basis. The **operating margin** as published stood at **17.7%**, a significant improvement of **+50 basis points excluding the energy impact** compared with the 1st half of 2021. The operating margin, as published, was down compared with the 1st half of 2021 due to the very strong increase in energy costs, which are contractually passed through to Large Industries customers and thus have a dilutive impact.

Gas & Services H1 2022 Operating Income Recurring



[5] *See definition in the appendix.*

Industrial Merchant prices were up **+12.6%** in the 1st half, demonstrating the Group's ability to pass through cost increases. Prices were also up in Large Industries, Electronics and in all regions in Healthcare.

Gas & Services Operating margin (a)	H1 2021	H1 2022	H1 2022, excluding energy impact	2022/2021 excluding energy impact
Americas	19.7%	19.3%	19.9%	+20 bps
Europe	18.9%	14.2%	19.8%	+90 bps
Asia-Pacific	22.1%	20.7%	21.9%	-20 bps
Middle East & Africa	19.3%	23.3%	24.0%	+470 bps
TOTAL	**20.0%**	**17.7%**	**20.5%**	+50 bps

(a) Operating income recurring / revenue as published

Operating income recurring in the **Americas** reached **969 million euros** over the 1st half of 2022, a sharp increase of **+20.9%** as published. Excluding the energy impact, the operating margin stood at **19.9%**, representing an increase of **+20 basis points** compared with the 1st half of 2021. This performance was mainly due to high efficiencies, in particular in Industrial Merchant, and by a favorable mix effect in Large Industries due to the strong growth in air gases. The contribution from the Electronics business was also positive.

Operating income recurring in **Europe** reached **771 million euros**, an increase as published of **+11.4%** compared with the 1st half of 2021. Excluding the energy impact, the operating margin stood at **19.8%**, representing a very sharp increase of **+90 basis points** compared with the 1st half of 2021. This performance was driven by a positive mix effect in Large Industries, due to favorable air gas sales compared to hydrogen sales, and the solid contribution of efficiencies. Active business portfolio management, which includes in particular the divestiture of activities in Greece in 2021, contributed to improve performance.

Operating income recurring in **Asia Pacific** stood at **567 million euros**, an increase as published of **+10.5%**. The operating margin excluding the energy impact reached **21.9%**, representing a decrease of **-20 basis points** compared with the 1st half of 2021. The slowdown in the Industrial Merchant business in China during the 2nd quarter due to lockdowns had an unfavorable impact on the margin, which canceled out the small positive contributions from Large Industries and Electronics, which were mainly driven by efficiencies.

Operating income recurring for the **Middle East and Africa** region amounted to **96 million euros**, representing a marked increase of **+61.7%** as published compared with the 1st half of 2021. Excluding the energy impact, the operating margin stood at **24.0%**, representing a significant increase of **+470 basis points** compared with the 1st half of 2021. This performance was mainly driven by the integration of Sasol's 16 air separation units. The improvement was also due to efficiencies generated across all business lines.

Engineering & Construction

Engineering & Construction operating income recurring stood at **22 million euros** for the 1st half of 2022, representing 10.1% of sales.

Global Markets & Technologies

Operating income recurring for **Global Markets & Technologies** stood at **50 million euros** in the 1st half of 2022, with an operating margin at **12.9%**, an increase of **+70 basis points** compared with the 1st half of 2021.

Research & Development and Corporate costs

Research & Development expenses and Corporate costs totaled **190 million euros**.

NET PROFIT

Other operating income and expenses showed a net balance of **-270 million euros**. Other non-recurring operating expenses totaled 475 million euros and included a 404 million euro exceptional provision on the Group's assets in Russia, with no impact on cash, as well as costs for the unwinding of certain hedging positions and mothballing of some projects also in Russia in the amount of 15 million euros. Other non-recurring operating expenses also included, for around 47 million euros, a provision for risks in Engineering & Construction, as well as restructuring costs. Other non-recurring operating income stood at 206 million euros related to Air Liquide taking control of a joint venture in Asia-Pacific during the 1st half, revalued at fair market value.

The **financial result** was **-180 million euros** compared with -188 million euros in the 1st half of 2021. This included a cost of net debt of -145 million euros, which represented an increase of +2.0% excluding the currency impact. The average cost of net debt, at 3.0%, was just slightly higher than in the 1st half of 2021 (2.9%), mainly due to the increase in external debt relating to the acquisition of Sasol's air separation units in South Africa.

Income tax expense was **459 million euros**. The effective tax rate was **25.0%**, up very slightly from 24.7% in the 1st half of 2021.

The **share of profit of associates** amounted to **1 million euros**. The **share of minority interests in net profit** totaled **73 million euros**, up +35.3% mainly due to Air Liquide taking control in January 2022 of a joint venture in Asia-Pacific.

The **net profit (Group share)** amounted to **1,305 million euros** in the 1st half of 2022, an increase of **+5.3%** as published. Excluding the exceptional provision on the Group's industrial assets in Russia, which has no impact on cash, a provision for risks in the Engineering & Construction business, and an exceptional income from Air Liquide taking control of a joint venture in Asia-Pacific, **recurring net profit (Group share)**(6) reached **1,551 million euros**. It increased by +25.1% and **+20.4% excluding the currency impact**, which is significantly higher than the comparable sales growth of +7.7% over the half-year.

Net earnings per share rose by **+5.0%** compared with the 1st half of 2021, in line with the increase in net profit (Group share). These stood at **2.50 euros per share** compared with 2.38 euros per share in the 1st half of 2021. Net earnings per share for previous fiscal years have been restated for the free share attribution carried out in June 2022. The average number of outstanding shares used for the calculation of net earnings per share as of June 30, 2022 was **522,144,843**.

6 *See definition and reconciliation in the appendix.*

Change in the number of shares

	H1 2021	H1 2022
Average number of outstanding shares	**520,533,968** [(a)]	**522,144,843**
Number of shares as of December 31, 2021		**475,291,037**
Options exercised during the year, prior to the free share attribution		**179,795**
Cancellation of treasury shares		**0**
Free shares issued		**48,905,499**
Option exercised during the year, after the free share attribution		**21,933**
Number of shares as of June 30, 2022		**524,398,264**

(a) Adjusted following the free share attribution in June 2022.

Change in Net debt

Cash flow from operating activities before changes in net working capital amounted to **2,907 million euros** during the 1st half of 2022, representing a sharp increase of **+17.1%** and +11.5% excluding the currency impact. This corresponds to a high level of **20.5% of sales** and **23.5% excluding the energy impact**, and represents a **+60 basis point improvement excluding the energy impact** compared with the 1st half of 2021.

Working capital requirement (WCR) was up **+635 million euros** compared with December 31, 2021 due to the increase of stocks reflecting inflation and the increase of accounts receivables (the strong increase of energy costs being passed through to Large Industries customers). The WCR excluding taxes to sales ratio was 2.6% compared with 3.7% at June 30, 2021. **Net cash flow from operating activities after changes in working capital requirement** amounted to **2,241 million euros**, an increase of **+2.3%** compared with the 1st half of 2021.

Gross capital expenditure totaled **1,628 million euros**. **Gross industrial capital expenditure** amounted to **1,574 million euros**, an increase of +9.4% compared with the 1st half of 2021 and of +4.7% excluding the currency impact. This represented **12.7% of sales excluding the energy impact**, reflecting dynamic project development activity. **Financial investments** stood at **54 million euros** compared with 569 million euros for the 1st half of 2021, including approximately 480 million euros for the acquisition of 16 Sasol air separation units in South Africa. **Proceeds from the sale of fixed assets and businesses** were **68 million euros**, notably including the divestiture of two small businesses in the Middle East. This reflects the Group's active business portfolio management. **Net capital expenditure**[7] totaled **1,547 million euros**.

Net debt at June 30, 2022 reached **12,010 million euros**, stable compared with 12,013 million euros at June 30, 2021 and an increase of 1,562 million euros compared with December 31, 2021 following the payment of more than 1.4 billion euros in dividends in May and more than 1.5 billion euros in capital expenditure in the 1st half. The **net debt-to-equity ratio**, adjusted for the seasonal effect of the dividend payment, stood at **46.0%**, down sharply compared with 56.1% at the end of June 2021.

The **return on capital employed after tax (ROCE)** was 9.0% for the 1st half of 2022. **Recurring ROCE**[8] stood at **9.7%**, an increase of **+70 basis points** compared with the 1st half of 2021.

[7] *Including transactions with minority shareholders.*
[8] *See definition and reconciliation in the Appendix.*

INVESTMENT CYCLE

INVESTMENT DECISIONS AND INVESTMENT BACKLOG

In the 1st half of 2022, **industrial and financial investment decisions** totaled **1,796 million euros**. This compares to 1,429 million euros during the 1st half of 2021, excluding the acquisition of Sasol's Air Separation Units (ASUs) in South Africa for approximately 480 million euros.

Industrial investment decisions reached **1,738 million euros** in the 1st half of 2022, up sharply compared to 1,349 million euros in the 1st half of 2021. In addition to investments decided during the 1st quarter in Asia, the Americas and Europe, new contracts were signed in **Electronics** in China and Singapore during the 2nd quarter. Following a long-term contract signature with a customer within the Electronics industry and the mutualization of Industrial Merchant and Healthcare customers needs, a new ASU will allow to develop significantly the liquefied gas production capacity in the Guangdong, second-largest **Industrial Merchant** market in China. In **Large Industries**, a new investment in Germany will connect the steel mill of a customer to the local hydrogen network. This will allow the second phase of a pilot project aimed at injecting hydrogen into a blast furnace to reduce CO_2 emissions. Investment decisions during the 2nd quarter also included, in **Healthcare**, a new specialty ingredients facility in France. Moreover, in the 1st half of 2022, **10%** of industrial decisions contributed to **efficiencies** programs.

Financial investment decisions totaled **57 million euros** in the 1st half of 2022. These included several bolt-on acquisitions in **Industrial Merchant** in the United States, China and the Netherlands, which will strengthen our local presence and improve the efficiency of our business.

The **investment backlog** remained high at **3.0 billion euros**. Despite a significant number of new projects being signed during the 2nd quarter, the investment backlog was down compared with the 1st quarter, due to the start-up of several major projects in the United States and the exit of projects in Russia that were decided on in 2020 and 2021 for around 160 million euros. Projects in **Asia** for Semiconductor, Chemicals and Steel customers, represented more than half of the investment backlog. These investments should lead to a future contribution to annual sales of approximately **1.1 billion euros** per year when fully ramped up.

START-UPS

Several major units started up during the 1st half of 2022. These notably included large-capacity air separation units to supply **Large Industries** customers in Texas, and a major hydrogen production and liquefaction unit for the hydrogen mobility market in California. Several carrier gases and advanced materials production units for **Electronics** customers in Asia also started up during the 1st half of 2022. Moreover, in the **GM&T** business, a biogas production unit in the United States and a refueling station in France to develop hydrogen mobility ahead of the 2024 Olympic Games were commissioned.

The **additional contribution to revenue** of unit start-ups and ramp-ups totaled **213 million euros** over the 1st half of 2022. This included a contribution of 72 million euros from Sasol's ASUs in South Africa, which were acquired in 2021 and reported in the significant scope impact on sales.

In 2022, the additional contribution to revenue of unit start-ups and ramp-ups is expected to be **between 410 and 435 million euros.** This includes the contribution from Sasol's air separation units of around 135 million euros, reported in the significant scope impact, and the contribution from the ramp-up of units in Russia for around 10 million euros during the 2nd half (under a continued operations scenario for the 2nd half).

INVESTMENT OPPORTUNITIES

The **12-month portfolio of investment opportunities** stood at **3.3 billion euros** at the end of June 2022.

Projects related to the **energy transition** accounted for more than 40% of the portfolio. These notably included projects for renewable hydrogen production by water electrolysis, facilities for the capture of CO_2 emitted by the Group's or its customers' units, as well as hydrogen mobility projects in Europe and Asia. The share of the **Electronics** business in the portfolio of opportunities increased and represented around 30%.

Europe remained the portfolio of opportunities' leading region with numerous energy transition projects, in particular in Large Industries. It is followed by **Asia**, where the majority of projects for Electronics customers are being carried out. In the **Americas**, the portfolio also included several Electronics projects, in addition to the investment opportunities in Large Industries and Biogas.

RISK FACTORS

The current military conflict between Russia and Ukraine increases certain risks or categories of risk specific to the Group described on pages 75 to 89 of the 2021 Universal Registration Document. Before the beginning of the conflict, Air Liquide's presence in Ukraine was limited to a sales representation and engineering services for the Engineering & Construction business. Revenue generated by the Group in Russia in 2021 represented less than 1% of the Group's consolidated revenue, and the net value of Group assets located in Russia was less than 2% of the Group's total net assets at December 31, 2021.

The Group is actively reviewing all options as the situation evolves. Air Liquide is in a complex position as it provides medical oxygen to hospitals, in addition to its industrial activity.

The Group has applied management measures that are adapted to each business, including, in particular:

- **Human resource management risks**: In Ukraine, despite activity being at a standstill, the Group has reorganized the workload of its employees to focus on projects outside of the country thanks to the use of digital tools. In Ukraine and Russia, external telephone support helplines have been set up to provide psychological support to any employee who requires it. Several humanitarian initiatives have been launched and/or supported by the Group, notably thanks to the commitment of employees and of the Air Liquide Foundation.

- **Industrial investment-related risks**: To date, the Group's global operations have remained relatively unaffected by the conflict between Ukraine and Russia. Air Liquide is strictly applying international sanctions. In this regard, the Group has suspended all new foreign investment decisions in Russia. The financial impacts are described in note 1 in the appendix of the Condensed Consolidated Financial Statements as of June 30, 2022.

- **Supply-related risks**: Electricity and natural gas are the main raw materials at the production units. These two energy sources have been affected by an unprecedented increase in their prices and strong volatility. Main customers contracts are indexed on the energy price, which considerably limits the impact on the Group. Nonetheless, the consequences of the war in Ukraine expose the European entities (in particular those in Germany, the Netherlands and Belgium) to a risk of natural gas curtailment. Air Liquide's teams are continuously monitoring the situation (storage levels, financial stability of its suppliers, potential impact for its customers, raw material alternatives (naphtha), etc.). For the moment, Air Liquide has limited knowledge of the contingency plans that various governments may put in place (priority sectors, voluntary reduction in consumption by certain users, etc.). In anticipation of a potential interruption of gas supplies, Air Liquide is implementing action plans in collaboration with its suppliers and customers. Moreover, certain customers may be forced to shut down their activities due to a shortage of energy for their plants and processes.

  The current conflict has also had an impact on the availability of certain molecules (such as rare gases). Where possible, the Group has reorganized its logistic flows to supply its customers using alternative sources.

- **Digital risks**: in view of the current context of the conflict in Ukraine, which is prone to cyber attacks, the Group has stepped up preventive measures such as penetration testing on Industrial Management Systems, raising awareness among the teams of the risk of phishing, etc.

- **Customer risks**: Customers are systematically subject to verifications relating to applicable sanctions and analyses are carried out on a case-by-case basis. Supply to medical customers was ensured in all cases.

- **Regulatory and legal risks**: In response to the conflict in Ukraine, sanctions have been introduced by the United States, Europe, the United Kingdom and Canada, among others, against Russia and Belarus. The latter have retaliated with countermeasures. Specialist teams within the Group monitor these developments. They provide regular updates to the operating entities and support in verifying compliance with the applicable laws. The Group takes advice from external consultants and seeks validation from the French authorities where necessary.

Moreover, the Group moved quickly to set up a crisis management unit. As part of the Group's crisis management mechanism, operational business continuity plans were activated.

Although this crisis increases the probability and the impact of the above-mentioned risk factors, it is not of a nature to call into question the scope and classification of these Group-specific risks as presented in the 2021 Universal Registration Document.

Moreover, the covid-19 public health crisis, which is not specific to the Group, is still ongoing. The Group has maintained its action plan to protect its teams and assets, while providing the best possible service to its customers. The Group has capitalized on the transfer of experience across geographies. In recent months, due diligence and crisis management measures relating to covid-19 have been particularly applied in Asia.

Other risks, which are unknown at the date of this document, may nonetheless occur and have a negative effect on the Group's business.

OUTLOOK

The Group delivered a **very strong performance** during the 1st half of 2022. This is even more **remarkable** considering the particularly complex macroeconomic and geopolitical context. **Revenue reached 14.2 billion euros, an increase of +7.7% on a comparable basis**. As published, revenue was up +31%, reflecting the sharp increase in energy prices in particular. Growth was achieved across all activities: **Gas & Services**, which represents 96% of revenue, **Engineering & Construction** and **Global Markets & Technologies.**

In Gas & Services, **all geographies improved**, driven mainly by **Industrial Merchant** and **Electronics**, which enjoyed strong growth particularly in Asia. In Industrial Merchant, value creation and dynamic price management allowed the Group to transfer the increase in costs, while in Large Industries, the increase in energy prices is contractually passed on to customers.

In this context, the Group's **operating margin** improved again significantly by **+50 basis points**, excluding the energy impact. The Group also continues taking efficiency measures, notably through targeted industrial investments.

Recurring net profit[9] reached 1.6 billion euros, an increase of **+20.4% excluding the currency impact**. Net profit (Group share) was 1.3 billion euros, an increase as published of +5.3% despite a non-recurring provision on the assets in Russia. Cash flow from operating activities before changes in net working capital remained high at 23.5% of sales excluding energy impact. The balance sheet is solid, with a net debt-to-equity ratio[10] down again to 46%. Recurring ROCE[11] continued to improve and reached 9.7% at the end of June, in line with the target of 10% by 2023.

The Group maintained **a strong investment momentum, which is a guarantee of future growth and the expression of its commitment to fight climate change**. With more than 40% of projects linked to the energy transition, 12-month investment opportunities are numerous and total 3.3 billion euros. **Investment decisions were high and reached 1.8 billion euros** this half-year. The project backlog, at 3 billion euros, remains high.

Following a strong performance in the 1st half of 2022, combined with a more resilient business model and a clear strategic plan, as well as committed teams, the Group is entering the second half of the year.

In 2022, assuming no significant economic disruption, Air Liquide is confident in its ability to further increase its operating margin and to deliver recurring net profit growth at constant exchange rates[12].

9 Excluding exceptional and significant transactions that have no impact on the operating income recurring.
10 Adjusted for dividend seasonality.
11 Based on the recurring net profit, see reconciliation in appendix.
12 Operating margin excluding energy passthrough impact. Recurring net profit excluding exceptional and significant transactions that have no impact on the operating income recurring, and excluding the impact of any US tax reform in 2022.

APPENDICES

Performance indicators

Performance indicators used by the Group that are not directly defined in the financial statements have been prepared in accordance with the AMF position 2015-12 about alternative performance measures.

The performance indicators are the following:
- Currency, energy and significant scope impacts
- Comparable sales change and comparable operating income recurring change
- Operating margin and operating margin excluding energy
- Recurring net profit Group share
- Recurring net profit excluding currency effect
- Net Profit Excluding IFRS16
- Net Profit Recurring Excluding IFRS16
- Efficiencies
- Return on Capital Employed (ROCE)
- Recurring ROCE

Definition of Currency, energy and significant scope impacts

Since industrial and medical gases are rarely exported, the impact of currency fluctuations on activity levels and results is limited to euro translation impacts with respect to the financial statements of subsidiaries located outside the euro zone. **The currency effect** is calculated based on the aggregates for the period converted at the exchange rate for the previous period.

In addition, the Group passes on variations in the cost of energy (electricity and natural gas) to its customers via indexed invoicing integrated into their medium and long-term contracts. This indexing can lead to significant variations in sales (mainly in the Large Industries Business Line) from one period to another depending on fluctuations in prices on the energy market.

An energy impact is calculated based on the sales of each of the main subsidiaries in Large Industries. Their consolidation allows the determination of the energy impact for the Group as a whole. The foreign exchange rate used is the average annual exchange rate for the year N-1. Thus, at the subsidiary level, the following formula provides the energy impact, calculated for natural gas and electricity respectively:

Energy impact =
Share of sales indexed to energy year (N-1) x (Average energy price in year (N) - Average energy price in year (N-1))

This indexation effect of electricity and natural gas does not impact the operating income recurring.

The significant scope effect corresponds to the impact on sales of all acquisitions or disposals of a significant size for the Group. These changes in scope of consolidation are determined:
- for acquisitions during the period, by deducting from the aggregates for the period the contribution of the acquisition,
- for acquisitions during the previous period, by deducting from the aggregates for the period the contribution of the acquisition between January 1 of the current period and the anniversary date of the acquisition,
- for disposals during the period, by deducting from the aggregates for the previous period the contribution of the disposed entity as of the anniversary date of the disposal,
- for disposals during the previous period, by deducting from the aggregates for the previous period the contribution of the disposed entity.

Calculation of performance indicators (Semester)

COMPARABLE SALES CHANGE AND COMPARABLE OPERATING INCOME RECURRING CHANGE

Comparable changes for sales and operating income recurring exclude the currency, energy and significant scope impacts described above.

(in millions of euros)	H1 2022	H1 2022/2021 Published Growth	Currency impact	Natural gas impact	Electricity impact	Significant scope impact	H1 2022/2021 Comparable Growth
Revenue							
Group	14,207	+31.0%	623	1,297	534	72	+7.7%
Impacts in %			*+5.8%*	*+11.9%*	*+4.9%*	*+0.7%*	
Gas & Services	13,600	+31.4%	606	1,297	534	72	+7.2%
Impacts in %			*+5.9%*	*+12.5%*	*+5.1%*	*+0.7%*	
Operating Income Recurring							
Group	2,286	+17.4%	124	-	-	35	+9.2%
Impacts in %			*+6.4%*	-	-	*+1.8%*	
Gas & Services	2,404	+16.3%	120	-	-	35	+8.8%
Impacts in %			*+5.8%*	-	-	*+1.7%*	

OPERATING MARGIN AND OPERATING MARGIN EXCLUDING ENERGY

The operating margin is the ratio of the operating income recurring divided by revenue. The operating margin excluding energy corresponds to the operating income recurring, not affected by the indexation effect of electricity and natural gas, divided by revenue excluding the energy impact. The ratio of operating income recurring divided by the revenue (whether restated or not from the energy impact) is calculated with rounding to one decimal place. The variation between 2 periods is calculated as the difference between these rounded ratios, which can result in positive or negative differences compared to a more precise calculation, due to rounding.

		H1 2022	Natural gas impact	Electricity impact	H1 2022, excluding energy impact
Revenue	Group	14,207	1,314	533	12,361
	Gas & Services	13,600	1,314	533	11,753
Operating Income Recurring	Group	2,286			2,286
	Gas & Services	2,404			2,404
Operating Margin	**Group**	**16.1%**			**18.5%**
	Gas & Services	**17.7%**			**20.5%**

RECURRING NET PROFIT GROUP SHARE AND RECURRING NET PROFIT GROUP SHARE EXCLUDING CURRENCY IMPACT

The recurring net profit Group share corresponds to the net profit Group share excluding exceptional and significant transactions that have no impact on the operating income recurring.

	H1 2021	H1 2022	2022/2021 Change
(A) Net Profit (Group Share) - As Published	**1,239.0**	**1,304.8**	**+5.3%**
(B) Exceptional and significant transactions after-tax with no impact on OIR			
- Exceptional provision on industrial assets in Russia and other associated costs		(419.0)	
- Exceptional income related to joint-venture take-over in Asia-Pacific		205.5	
- Provision for risks in Engineering & Construction activity		(32.3)	
(A) - (B) = Net Profit Recurring (Group Share)	**1,239.0**	**1,550.6**	**+25.1%**
(C) Currency impact		58.9	
(A) - (B) - (C) = Net Profit Recurring (Group Share) excluding currency impact		**1,491.7**	**+20.4%**

NET PROFIT EXCLUDING IFRS16 AND NET PROFIT RECURRING EXCLUDING IFRS16

Net Profit excluding IFRS16:

	H1 2021	FY 2021	H1 2022
(A) Net Profit as Published	**1,293.1**	**2,691.9**	**1,377.6**
(B) = IFRS16 Impact[1]	(6.0)	(13.3)	(7.2)
(A) - (B) = Net Profit excluding IFRS16	**1,299.1**	**2,705.2**	**1,384.8**

[1] *The IFRS16 impact includes the reintegration of leasing expenses less depreciation and other financial expenses booked in relation to IFRS16*

Net Profit Recurring excluding IFRS16:

	H1 2021	FY 2021	H1 2022
(A) Net Profit as Published	**1,293.1**	**2,691.9**	**1,377.6**
(B) Exceptional and significant transactions after-tax with no impact on OIR	0.0	0.0	(245.8)
(A) - (B) = Net Profit recurring	**1,293.1**	**2,691.9**	**1,623.4**
(C) IFRS16 Impact[1]	(6.0)	(13.3)	(7.2)
(A) - (B) - (C) = Net Profit recurring excluding IFRS16	**1,299.1**	**2,705.2**	**1,630.6**

[1] *The IFRS16 impact includes the reintegration of leasing expenses less depreciation and other financial expenses booked in relation to IFRS16*

EFFICIENCIES

Efficiencies represent a sustainable cost reduction resulting from an action plan on a specific project. Efficiencies are identified and managed on a per project basis. Each project is followed by a team composed in alignment with the nature of the project (purchasing, operations, human resources...).

RETURN ON CAPITAL EMPLOYED - ROCE

Return on capital employed after tax is calculated based on the Group's consolidated financial statements, by applying the following ratio for the period in question.

For the numerator: net profit excluding IFRS16 - net finance costs after taxes for the period in question.
For the denominator: the average of (total shareholders' equity excluding IFRS16 + net debt) at the end of the past three half-years.

(in millions of euros)		H1 2021 (a)	FY 2021 (b)	H1 2022 (c)	ROCE Calculation
Numerator (b)-(a)+(c)	Net Profit Excluding IFRS16	1,299.1	2,705.2	1,384.8	**2,790.9**
	Net Finance costs	(140.7)	(280.0)	(144.7)	(284.0)
	Effective Tax Rate [1]	24.5%	24.6%	24.2%	
	Net Finance costs after tax	(106.2)	(211.2)	(109.7)	(214.7)
	Net Profit - Net financial costs after tax	1,405.3	2,916.4	1,494.5	3,005.6
Denominator ((a)+(b)+(c))/3	Total Equity Excluding IFRS16	19,607.6	22,039.6	23,942.0	**21,863.2**
	Net Debt	12,013.2	10,448.3	12,009.9	**11,490.5**
	Average of (total equity + net debt)	31,620.8	32,487.9	35,951.9	33,353.7
ROCE					**9.0%**

[1] *excluding non-recurring tax impact*

RECURRING ROCE

The recurring ROCE is calculated in the same manner as the ROCE using the recurring net profit excluding IFR16 for the numerator.

(in millions of euros)		H1 2021 (a)	FY 2021 (b)	H1 2022 (c)	Recurring ROCE Calculation
Numerator (b)-(a)+(c)	Net Profit Recurring Excluding IFRS16	1,299.1	2,705.2	1,630.6	**3,036.7**
	Net Finance costs	(140.7)	(280.0)	(144.7)	(284.0)
	Effective Tax Rate(1)	24.5%	24.6%	24.2%	
	Net Finance costs after tax	(106.2)	(211.2)	(109.7)	(214.7)
	Recurring Net Profit Excluding IFRS16 - Net financial costs after tax	1,405.3	2,916.4	1,740.3	3,251.4
Denominator ((a)+(b)+(c))/3	Total Equity Excluding IFRS16	19,607.6	22,039.6	23,942.0	**21,863.2**
	Net Debt	12,013.2	10,448.3	12,009.9	**11,490.5**
	Average of (total equity + net debt)	31,620.8	32,487.9	35,951.9	33,353.7
Recurring ROCE					**9.7%**

[1] *excluding non-recurring tax impact*

Calculation of performance indicators (Quarter)

	Q2 2022	Q2 2022/2021 Published Growth	Currency impact	Natural gas impact	Electricity impact	Significant scope impact	Q2 2022/2021 Comparable Growth
Revenue							
Group	7,320	+32.8%	398	690	267	37	+7.5%
Impacts in %			*+7.2%*	*+12.5%*	*+4.9%*	*+0.7%*	
Gas & Services	7,010	+33.6%	389	690	267	37	+7.3%
Impacts in %			*+7.4%*	*+13.1%*	*+5.1%*	*+0.7%*	

2nd quarter 2022 revenue

BY GEOGRAPHY

Revenue *(in millions of euros)*	Q2 2021	Q2 2022	Published change	Comparable change
Americas	2,056	2,686	+30.6%	+9.5%
Europe	1,860	2,706	+45.5%	+5.7%
Asia-Pacific	1,176	1,406	+19.7%	+6.5%
Middle East & Africa	155	212	+36.7%	+2.1%
Gas & Services Revenue	**5,247**	**7,010**	**+33.6%**	**+7.3%**
Engineering & Construction	93	113	+21.9%	+19.8%
Global Markets & Technologies	172	197	+14.2%	+9.8%
GROUP REVENUE	**5,512**	**7,320**	**+32.8%**	**+7.5%**

BY WORLD BUSINESS LINE

Revenue *(in millions of euros)*	Q2 2021	Q2 2022	Published change	Comparable change
Large industries	1,471	2,527	+71.8%	-2.9%
Industrial Merchant	2,342	2,872	+22.6%	+13.5%
Healthcare	921	970	+5.4%	+2.1%
Electronics	513	641	+24.7%	+17.2%
GAS & SERVICES REVENUE	**5,247**	**7,010**	+33.6%	+7.3%

Geographic and segment information

(in millions of euros and %)	H1 2021 Revenue	H1 2021 Operating income recurring	H1 2021 OIR margin	H1 2022 Revenue	H1 2022 Operating income recurring	H1 2022 OIR margin
Americas	4,059	802	19.7%	5,017	969	19.3%
Europe	3,657	692	18.9%	5,424	771	14.2%
Asia-Pacific	2,326	513	22.1%	2,746	567	20.7%
Middle East and Africa	308	60	19.3%	413	97	23.3%
Gas & Services	**10,350**	**2,066**	**20.0%**	**13,600**	**2,404**	**17.7%**
Engineering and Construction	169	8	4.5%	221	22	10.1%
Global Markets & Technologies	327	40	12.2%	386	50	12.9%
Reconciliation	-	(166)	-	-	(190)	-
TOTAL GROUP	**10,846**	**1,948**	**18.0%**	**14,207**	**2,286**	**16.1%**

The **operating margin** (OIR to revenue ratio) stood at **16.1%** as published, representing a -190 basis point decline compared with the 1st half of 2021 due mainly to the sharp increase in energy costs which are contractually passed through to Large Industries customers. This therefore has a dilutive impact on the published margin (without impacting the operating income in absolute value). **Excluding the energy impact, the operating margin improved very significantly by +50 basis points** compared with the 1st half of 2021.

Consolidated income statement

(in millions of euros)	1st half 2021	1st half 2022
Revenue	**10,845.7**	**14,206.6**
Other income	70.0	103.3
Purchases	(4,078.6)	(6,515.7)
Personnel expenses	(2,129.2)	(2,380.0)
Other expenses	(1,711.3)	(1,939.6)
Operating income recurring before depreciation and amortization	**2,996.6**	**3,474.6**
Depreciation and amortization expenses	(1,048.9)	(1,188.6)
Operating income recurring	**1,947.7**	**2,286.0**
Other non-recurring operating income	12.7	205.5
Other non-recurring operating expenses	(52.9)	(475.3)
Operating income	**1,907.5**	**2,016.2**
Net finance costs	(140.7)	(144.7)
Other financial income	4.1	29.0
Other financial expenses	(50.9)	(64.6)
Income taxes	(425.3)	(459.3)
Share of profit of associates	(1.6)	1.0
PROFIT FOR THE PERIOD	**1,293.1**	**1,377.6**
- Minority interests	53.8	72.8
- Net profit (Group share)	**1,239.3**	**1,304.8**
Basic earnings per share (in euros)	**2.38** [a]	**2.50**

(a) Adjusted following the free share attribution in June 2022.

Consolidated balance sheet

ASSETS (in millions of euros)	December 31, 2021	June 30, 2022
Goodwill	13,992.3	14,864.1
Other intangible assets	1,452.6	1,900.4
Property, plant and equipment	22,531.5	23,915.9
Non-current assets	**37,976.4**	**40,680.4**
Non-current financial assets	745.4	884.4
Investments in associates	158.0	157.9
Deferred tax assets	239.3	241.6
Fair value of non-current derivatives (assets)	73.4	56.0
Other non-current assets	**1,216.1**	**1,339.9**
TOTAL NON-CURRENT ASSETS	**39,192.5**	**42,020.3**
Inventories and work-in-progress	1,585.1	1,828.6
Trade receivables	2,694.1	3,242.9
Other current assets	810.5	934.9
Current tax assets	106.5	183.5
Fair value of current derivatives (assets)	63.9	124.1
Cash and cash equivalents	2,246.6	1,519.7
TOTAL CURRENT ASSETS	**7,506.7**	**7,833.7**
ASSETS HELD FOR SALE	**83.9**	88.3
TOTAL ASSETS	**46,783.1**	**49,942.3**

EQUITY AND LIABILITIES (in millions of euros)	December 31, 2021	June 30, 2022
Share capital	2,614.1	2,884.2
Additional paid-in capital	2,749.2	2,494.0
Retained earnings	13,645.1	16,627.7
Treasury shares	(118.3)	(310.2)
Net profit (Group share)	2,572.2	1,304.8
Shareholders' equity	**21,462.3**	**23,000.5**
Minority interests	**536.5**	**893.4**
TOTAL EQUITY	**21,998.8**	**23,893.9**
Provisions, pensions and other employee benefits	2,291.9	1,937.9
Deferred tax liabilities	2,126.8	2,451.0
Non-current borrowings	10,506.3	10,690.0
Non-current lease liabilities	1,032.8	1,084.6
Other non-current liabilities	343.0	302.5
Fair value of non-current derivatives (liabilities)	39.0	55.3
TOTAL NON-CURRENT LIABILITIES	**16,339.8**	**16,521.3**
Provisions, pensions and other employee benefits	309.4	309.9
Trade payables	3,333.2	3,610.8
Other current liabilities	2,002.9	2,046.9
Current tax payables	277.8	270.4
Current borrowings	2,188.6	2,839.6
Current lease liabilities	228.0	237.7
Fair value of current derivatives (liabilities)	67.5	167.6
TOTAL CURRENT LIABILITIES	**8,407.4**	**9,482.9**
LIABILITIES HELD FOR SALE	**37.1**	**44.2**
TOTAL EQUITY AND LIABILITIES	**46,783.1**	**49,942.3**

Consolidated cash flow statement

(in millions of euros)	1st half 2021	1st half 2022
Operating activities		
Net profit (Group share)	**1,239.3**	**1,304.8**
Minority interests	**53.8**	**72.8**
Adjustments:		
• Depreciation and amortization	1,048.9	1,188.6
• Changes in deferred taxes	(14.6)	(24.2)
• Changes in provisions	(30.5)	357.1
• Share of profit of associates	1.6	(1.0)
• Profit/loss on disposal of assets	22.1	(170.0)
• Net finance costs	101.3	108.5
• Other non cash items	61.5	70.7
Cash flow from operating activities before changes in net working capital	**2,483.4**	**2,907.3**
Changes in working capital	(266.8)	(634.5)
Other cash items	(26.2)	(31.9)
Net cash flows from operating activities	**2,190.4**	**2,240.9**
Investing activities		
Purchase of property, plant and equipment and intangible assets	(1,439.0)	(1,574.0)
Acquisition of consolidated companies and financial assets	(569.2)	(54.0)
Proceeds from sale of property, plant and equipment and intangible assets	44.6	45.8
Proceeds from the sale of subsidiaries, net of net debt sold and from the sale of financial assets	84.2	22.5
Dividends received from equity affiliates	3.3	12.7
Net cash flows used in investing activities	**(1,876.1)**	**(1,547.0)**
Financing activities		
Dividends paid		
• L'Air Liquide S.A.	(1,332.7)	(1,408.1)
• Minority interests	(33.4)	(20.1)
Proceeds from issues of share capital	22.6	16.8
Purchase of treasury shares	(40.2)	(192.5)
Net financial interests paid	(146.8)	(145.1)
Increase (decrease) in borrowings	874.9	467.0
Lease liabilities repayments	(118.4)	(125.3)
Net interests paid on lease liabilities	(16.5)	(14.6)
Transactions with minority shareholders	(36.8)	(0.0)
Net cash flows from (used in) financing activities	**(827.3)**	**(1,421.9)**
Effect of exchange rate changes and change in scope of consolidation	60.7	(35.2)
Net increase (decrease) in net cash and cash equivalents	**(452.3)**	**(763.2)**
NET CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE PERIOD	**1,718.6**	**2,138.9**
NET CASH AND CASH EQUIVALENTS AT THE END OF THE PERIOD	**1,266.4**	**1,375.7**

The analysis of net cash and cash equivalents at the end of the period is as follows:

(in millions of euros)	June 30, 2021	December 31, 2021	June 30, 2022
Cash and cash equivalents	1,387.3	2,246.6	1,519.7
Bank overdrafts (included in current borrowings)	(121.0)	(107.7)	(144.0)
NET CASH AND CASH EQUIVALENTS	**1,266.3**	**2,138.9**	**1,375.7**

Net debt calculation

(in millions of euros)	June 30, 2021	December 31, 2021	June 30, 2022
Non-current borrowings	(10,068.9)	(10,506.3)	(10,690.0)
Current borrowings	(3,331.6)	(2,188.6)	(2,839.6)
TOTAL GROSS DEBT	**(13,400.5)**	**(12,694.9)**	**(13,529.6)**
Cash and cash equivalents	1,387.3	2,246.6	1,519.7
TOTAL NET DEBT AT THE END OF THE PERIOD	(12,013.2)	(10,448.3)	(12,009.9)

Statement of changes in net debt

(in millions of euros)	H1 2021	FY 2021	H1 2022
Net debt at the beginning of the period	**(10,609.3)**	**(10,609.3)**	**(10,448.3)**
Net cash flows from operating activities	2,190.4	5,570.7	2,240.9
Net cash flows used in investing activities	(1,876.1)	(3,351.5)	(1,547.0)
Net cash flows used in financing activities excluding changes in borrowings	(1,555.4)	(1,593.6)	(1,743.8)
Total net cash flows	**(1,241.1)**	**625.6**	**(1,049.9)**
Effect of exchange rate changes, opening net debt of newly acquired companies and others	(64.8)	(269.3)	(407.1)
Adjustment of net finance costs	(98.0)	(195.3)	(104.6)
Change in net debt	**(1,403.9)**	**161.0**	**(1,561.6)**
NET DEBT AT THE END OF THE PERIOD	**(12,013.2)**	**(10,448.3)**	**(12,009.9)**

Sales, Operating Income Recurring and investments key figures synthesis

The following tables **gather data already available** in this report. They **complement the key figures** indicated in the table on the **first page**.

Sales

(H1 2022 split of revenue and comparable growth in %)	Total	Large Industries	Industrial Merchant	Electronics	Healthcare
Americas	*100%*	*20%*	*65%*	*5%*	*10%*
	+9.2%	+5.3%	+11.6%	+8.2%	+2.2%
Europe	*100%*	*48%*	*26%*	*2%*	*24%*
	+6.4%	-7.4%	+22.9%	N.C.	+3.3%
Asia-Pacific	*100%*	*38%*	*27%*	*32%*	*3%*
	+5.5%	-0.2%	+2.5%	+15.8%	N.C.
Middle-East and Africa	*100%*	N.C.	N.C.	N.C.	N.C.
	+0.9%				
	100%	*36%*	*41%*	*9%*	*14%*
Gas & Services	**+7.2%**	**-1.4%**	**+12.7%**	**+15.5%**	**+2.3%**
Engineering & Construction	+29.0%				
Global Markets & Technologies	+13.8%				
GROUP TOTAL	**+7.7%**				

N.C.: Not communicated.

Operating Income Recurring

(Operating margin in %[a])	H1 2021	H1 2022	H1 2022, excluding energy impact	2022/2021 excluding energy impact	Operating Income Recurring H1 2022 (M€)
Americas	19.7%	19.3%	19.9%	+20 bps	969
Europe	18.9%	14.2%	19.8%	+90 bps	771
Asia-Pacific	22.1%	20.7%	21.9%	-20 bps	567
Middle-East and Africa	19.3%	23.3%	24.0%	+470 bps	97
Gas & Services	**20.0%**	**17.7%**	**20.5%**	**+50 bps**	**2,404**
Engineering & Construction	4.5%	10.1%	10.1%	+560 bps	22
Global Markets & Technologies	12.2%	12.9%	12.9%	+70 bps	50

(a) Operating income recurring / revenue as published.

Investments

(in billion euros)	H1 2022
12-month portfolio of investment opportunities[a]	3.3
Investment decisions[b]	1.8
Investment backlog[a]	3.0
Additional contribution to revenue of unit start-ups and ramp-ups[b]	1.1

(a) At the end of the reporting period.
(b) Cumulated from the beginning of the calendar year until the end of the reporting period.

The slideshow that accompanies this release is available as of 7:20 am (Paris time) at www.airliquide.com.
Throughout the year, follow Air Liquide on Twitter: @AirLiquideGroup.

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UPCOMING EVENTS

Génération Hydrogène:
September 28, 2022

2022 3rd Quarter Revenue:
October 25, 2022

A world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 75 countries with approximately 66,400 employees and serves more than 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.

Taking action today while preparing the future is at the heart of Air Liquide's strategy. With ADVANCE, its strategic plan for 2025, Air Liquide is targeting a global performance, combining financial and extra-financial dimensions. Positioned on new markets, the Group benefits from major assets such as its business model combining resilience and strength, its ability to innovate and its technological expertise. The Group develops solutions contributing to climate and the energy transition—particularly with hydrogen—and takes action to progress in areas of healthcare, digital and high technologies.

Air Liquide's revenue amounted to more than 23 billion euros in 2021. Air Liquide is listed on the Euronext Paris stock exchange (compartment A) and belongs to the CAC 40, CAC 40 ESG, EURO STOXX 50 and FTSE4Good indexes.