Briefing

April 2026

Hidden emissions

What the Sasol-Air Liquide merger means for South Africa’s climate transition

Just Share

Table of Contents

1. Executive summary

Under the Paris Agreement, countries have committed to limiting global temperature rise to well below 2 degrees Celsius above pre-industrial levels while pursuing efforts to limit warming to 1.5 degrees Celsius. South Africa has also set a pathway towards net zero by 2050 with interim emission reduction targets under its nationally determined contribution (NDC)[1].

Achieving these targets requires emissions reductions across every major industrial sector – including some that operate largely out of public view.

One such sector that remains largely invisible in mainstream climate discourse is the industrial gases sector, despite its energy intensive operations and its role in enabling emissions across multiple heavy industries.

Because it operates in the background of industrial process, its climate relevance is often overlooked. Yet the sector produces essential inputs used across manufacturing, healthcare, chemicals and mining.

In South Africa, the significance of the sector becomes clear through the relationship between petrochemical giant Sasol and French industrial gas company Air Liquide.

A 2021 transaction between the two companies transferred ownership of the massive oxygen production system at Sasol's Secunda facility to Air Liquide. The deal was approved by the Competition Tribunal subject to several public interest conditions, including commitments relating to emissions reductions and renewable energy procurement.

This merger placed the industrial gas sector – usually hidden from the public – at the centre of one of the world's most carbon-intensive industrial sites.

However, progress on compliance with the merger conditions has been largely opaque.

This lack of transparency raises important questions of accountability.

If industrial gases are the hidden backbone of heavy industrial processes, then their emissions – and the role they play in enabling other emissions-intensive industries – cannot remain in the shadows.

Greater transparency, clearer emissions attribution and stronger disclosure around merger conditions are therefore essential.

[1] RSA 2025, South Africa's nationally determined contribution under Paris Agreement

Without them, investors and the public cannot assess whether the companies are meeting the commitments that justified approval of the merger in the first place.

2. The industrial gas sector and its climate change significance

Industrial gases – primarily oxygen, nitrogen, argon, hydrogen and carbon dioxide – are among the most widely consumed industrial inputs in the global economy.[2]

These products are essential across healthcare (e.g., medical oxygen, anaesthetics), food processing (e.g., CO_2 carbonation), metals production (e.g., oxygen in steelmaking and smelting), semiconductor manufacturing (e.g., ultra-high purity gases), and petrochemicals (e.g., hydrogen in refinery operations).

The process used to produce these gases - cryogenic air separation - is highly energy intensive. Large compressors must continuously cool and separate atmospheric gases, requiring enormous volumes of electricity.

As a result, industrial gas companies are among the largest corporate consumers of electricity in the world.[3] Figure 1 illustrates the comparison of electricity consumption between industrial gases companies and tech companies.[4]

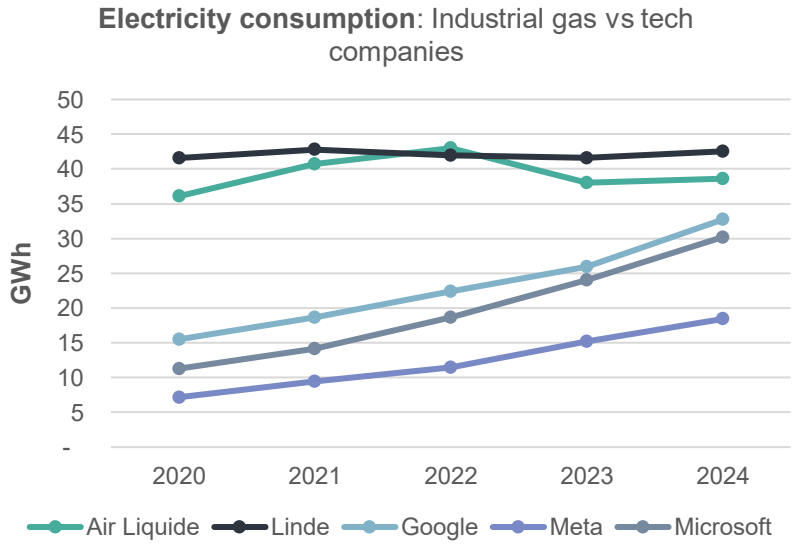

Figure 1: Electricity consumption of industrial gas companies, Air Liquide and Linde, compared to the large tech companies[4]

[2] European Industrial Gas Association: Applications
[3] Share Action 2025, Powering Change: Why industrial gas companies must speed up their transition to renewables
[4] Linde 2023, Sustainable Development Report; Linde 2024, Sustainable Development Report; Google 2025, Environmental Report; Air Liquide 2022, Sustainability Report; Air Liquide 2025, Integrated Report; Microsoft 2025, Environmental Data Fact Sheet; Meta 2025, Environmental Data Index

Vast electricity consumption means that Scope 1 and 2 emissions account for the majority of emissions for industrial gas companies.

Scope 1 emissions account for 33% and arise from direct emissions from hydrogen production and on-site steam or electricity generation, followed by Scope 2 emissions at 34%, which are indirect emissions from purchased or acquired energy.

Upstream Scope 3 emissions make up 17% and stem from fossil fuel extraction and processing for power generation, while downstream Scope 3 emissions account for 16% and relate to value-chain emissions from product use.

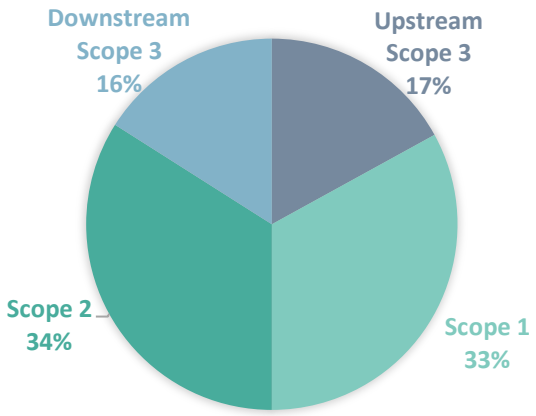

Figure 2: Emissions profile of three major industrial gas companies [5]

In countries where electricity production remains dominated by coal, such as South Africa, every additional megawatt-hour consumed translates directly into higher emissions.

This makes the sector particularly important in the context of national decarbonisation pathways.

While fossil fuels still drive many industrial gas processes, industrial gas companies are also uniquely positioned to accelerate the shift to renewable energy.

Their operations require large and stable electricity demand, meaning they can anchor new renewable energy projects and influence electricity market development.

Yet, despite this strategic position, industrial gas companies have remained largely absent from public discourse on industrial decarbonisation and climate accountability.

[5] Share Action 2025, Powering Change: Why industrial gas companies must speed up their transition to renewables

2.1. An underreported sector

Several factors explain why industrial gas companies receive far less scrutiny than firms in the energy, mining or consumer sectors:

- **Invisible intermediaries.** Industrial gas companies sell primarily to other industrial customers. This business-to-business model limits their public visibility despite their central role in industrial supply chains.

- **Sector misclassification.** Major industrial gas companies are classified as "speciality chemicals" in sustainability measurement frameworks such as Global Industry Classification Standard (GICS).[6] This classification obscures the sector's unique emissions profile as it means that they are grouped with companies whose dominant emissions are Scope 3, which follows a fundamentally different profile of reporting. For industrial gas companies instead, the core business of air separation drives Scope 2 emissions, from purchased electricity and steam power, and can account for approximately 30-40% of total emissions.[7]

- **Scale hidden by multinational operations.** Major industrial gas companies like Linde and Air Liquide operate hundreds of facilities globally, which makes them some of the world's largest corporate electricity consumers, exceeding even Google and Microsoft.[8] In fact, annually, the three largest industrial gas companies combined consume the same amount of electricity as the entire country of Belgium.[9] Aggregated reporting often masks the scale of emissions associated with specific sites or countries.

Combined, these factors mean that one of the most electricity-intensive sectors of the global economy receives relatively little climate scrutiny.

2.2. Market structure and scale

The global industrial gas market is highly concentrated. Three companies – Linde (UK/Ireland), Air Liquide (France) and Air Products (United States) – control more than 70% of the global market share.[10]

While not household names, these companies rank among the largest industrial corporations in the world, with Linde and Air Liquide ranking among the top 200 companies globally by market capitalisation.[11]

[6] S&PGlobal 2025, GICS structure (current & historical versions) report
[7] ShareAction 2025 Powering Change: Why industrial gas companies must speed up their transition to renewables
[8] ShareAction 2025 Powering Change: Why industrial gas companies must speed up their transition to renewables
[9] ShareAction 2025 Powering Change: Why industrial gas companies must speed up their transition to renewables
[10] MarketsandMarkets 2025, Industrial Gases Companies Air Liquide (France) and Linde PLC (UK) are Leading Players in the Industrial Gases Market. FY 2023 revenues derived from company financial reporting, assuming 1.10 EUR/USD exchange rate on 31 December 2023.
[11] ShareAction 2025, Powering Change: Why industrial gas companies must speed up their transition to renewables

The sector's business model relies on long-term supply contracts, typically lasting 10 to 20 years, with large industrial customers. This creates stable and predictable revenue streams while also embedding industrial gas producers deeply within the operations of their clients.

All three major industrial gas companies have a presence in South Africa (Figure 3). Air Liquide has a significant operational footprint in the country due to its ownership of the air separation units (ASUs) at Sasol's Secunda facility in Mpumalanga. Air Products South Africa has operations concentrated around industrial hubs, including Vanderbijlpark and Richards Bay.[12] Afrox (a Linde subsidiary) has major operations dispersed across the country, including Durban,[13] the Coega Industrial Development Zone (Gqeberha, Eastern Cape)[14] and Sasolburg.[15]

Figure 3: Map of the respective major industrial sites of Air Liquide, Afrox and Air Products South Africa, in South Africa[16]

However, the most significant industrial gas operation in the country is the Air Liquide operation in Secunda.

3. Secunda: The world's largest single-point source of emissions

Sasol's Secunda complex is the largest single-point source of greenhouse gas emissions on earth.[17] This means that it emits more CO_2 annually from a single location[18] than any other industrial site in the world.

[12] Mining Review Africa 2014, Industrial gases in the metals and mining sector – innovation and skills key to future growth
[13] Crown Publications 2016, Afrox unveils R60-million KZN investment
[14] Engineering News 2013 Afrox moving ahead with R300m Coega air separation unit
[15] Sasol 2021, Sasol launches the Boitjhorisong Welding Training Centre
[16] Just Share
[17] GBA 2024, TotalEnergies and Mulilo reach financial close on 260MW wind and solar wheeling project supplying Sasol and Air Liquide's Secunda operations
[18] NOAA 2024, Nonpoint Source Pollution, NOS Education Offering

What drives these significant emissions is the conversion process from coal into synthetic fuels and chemicals, which requires large and continuous volumes of oxygen, produced at scale on-site.

The oxygen is produced by Air Liquide, which owns and operates the 17 air separation units (ASUs) at Secunda.

Together, the 17 units produce approximately 45,000 tonnes of oxygen daily, making Secunda the largest oxygen production site in the world.[19]

The newest and largest of these, known as T17, is the largest ASU ever built, capable of producing 5,000 tonnes of oxygen per day.[20]

The emissions implications of this system are substantial.

Seven of the ASUs are powered by steam generated from coal-fired boilers, meaning that fossil fuels are burned directly on-site to drive the compression process. This is a substantial source of Scope 1 emissions.

The remaining ten units draw on electricity from South Africa's national grid, which remains approximately 81% coal based.[21] This translates into extremely high Scope 2 emissions.

The scale of these operations means that decisions taken by Air Liquide at Secunda have significant implications for South Africa's emissions trajectory.

4. Air Liquide in South Africa

Air Liquide's relationship with Sasol spans more than 40 years during which 16 of Sasol's ASUs were operated by Air Liquide.

In 2018, Air Liquide invested approximately €200 million to construct and operate T17, under a long-term oxygen supply contract with Sasol.[22]

In 2021, Air Liquide, under its South Africa subsidiary Air Liquide Large Industries South Africa (ALLISA), acquired the remaining 16 ASUs from Sasol for R8.5 billion, bringing the entire Secunda oxygen production system under Air Liquide's ownership and operation.[23]

The acquisition was approved by the South African Competition Tribunal, subject to both Sasol and Air Liquide, through ALLISA, satisfying several public interest conditions. These conditions included:

[19] Air Liquide 2018, South Africa: Air Liquide starts up the world's largest oxygen production unit
[20] South Africa: Air Liquide starts up the world's largest oxygen production unit | Air Liquide
[21] https://www.energize.co.za/article/coal-still-supplies-81-of-sas-electricity-nersa-reports NERSA 2025, Report on Monitoring Performance of Renewable Energy Power Plants
[22] Air Liquide 2018, South Africa: Air Liquide starts up the world's largest oxygen production unit
[23] Competition Tribunal approves Sasol air separation unit sale

- **Emissions reduction commitments.** Air Liquide committed to reducing carbon emissions from the associated ASUs by 30% within ten years of the merger implementation date, using 2020 data as the baseline.

- **Renewable energy procurement.** Both Sasol and Air Liquide committed to joint procurement of 900MW of renewable energy.[24]

- **Capital investment in site upgrades.** Air Liquide committed to spending a confidential amount on upgrading site assets over ten years, with at least 50% of that amount to be spent in the first five years (the 50% capital investment deadline is 2026).[25]

As the sole owner and operator of all 17 ASUs at Secunda, Air Liquide now bears direct responsibility for the emissions associated with the site's oxygen production.

4.1. Transparency

Key elements of the merger commitments remain confidential:[26]

- The total capital investment commitment was redacted from public merger documents.

- The emissions baseline used to measure the 30% reduction target has also not been publicly disclosed.

In addition, the merging parties have claimed confidentiality over compliance reports submitted to the Competition Tribunal.

This level of secrecy limits public oversight. It prevents investors, researchers and civil society from independently assessing whether merger conditions are being met.

It also creates a troubling precedent in which public interest commitments attached to large mergers become effectively unverifiable.

4.2. Merger conditions progress

Following the transaction, Air Liquide and Sasol moved to implement the renewable energy commitments through a joint Request for Proposals (RFP) issued in April 2021. The RFP sought 900 MW of renewable energy capacity, with approximate allocations of 500 MW and 400 MW, respectively, to Sasol and Air Liquide, according to media reports at the time.[27]

[24] Competition Tribunal of South Africa
[25] Competition Tribunal of South Africa
[26] Competition Tribunal of South Africa
[27] AEP 2021, Sasol, Air Liquide seek to procure 900 MW of renewables in South Africa

The procurement process has resulted in multiple project announcements, with contracts awarded to various independent power producers for wind, solar and battery projects across several provinces. Table 1 summarises the announced renewable energy projects resulting from this procurement initiative:

Table 1: Renewable Energy Projects Procured by Sasol and Air Liquide

Date announced	Forecasted operational date	Project status	Company	RE type	Project location	Capacity
Jan 2023	2026	Construction began in Mar 2024. No update on operational status.[28]	Enel Green Power	Wind	Eastern Cape	220MW
Feb 2023	2026	Financial close Nov 2024. Construction began in 2024.[29]	Total Energies/Mulilo	Wind: 140 Solar 120	Northern Cape	260MW
Nov 2023	2025	Facility commissioned in Oct 2025[30]	Mainstream Renewable Power	Solar	Free State	97.5MW
Feb 2024	2026	Construction began in 2024.[31] No update on operational status.	Enel Green Power	Wind	Eastern Cape	110MW
Feb 2026	2028	Financial close Feb 2026.[32]	SOLA Group	Solar Battery	Free State	300MW
Total						**987.5MW**

[28] Sasol 2023, Air Liquide and Sasol sign first long-term contracts for supply of renewable energy to the Secunda site
[29] Sasol 2024, With new financial close, Sasol and Air Liquide are progressing their path to securing renewable energy for Secunda decarbonisation
[30] Sasol 2025, Official inauguration of Damlaagte PV marks major milestone in Industrial Decarbonisation
[31] Sasol 2024, Sasol and Air Liquide PPAs with Enel Green Power RSA for 330 MW of renewable energy to Sasol Secunda site reach financial close
[32] Air Liquide 2026, A Great Milestone in our South African Decarbonization Journey

Procurement vs operational timelines

By the end of the first quarter of 2026, Sasol and Air Liquide had exceeded the merger target of 900MW, reaching nearly 1GW of renewable energy capacity through signed Power Purchase Agreements (PPAs). Air Liquide's allocated share of the renewable capacity was 460 MW, with claimed expectations of annual 1.4 million tonnes reductions (or 1.4 Mt/year) in CO_2 emissions.[33]

While this represents significant progress on face value, only about 100 MW of renewable energy is operational. This means that less than 11% of the committed renewable capacity is actually producing electricity nearly five years after the merger was implemented.[34]

As shown in Table 1, a significant share of renewable energy PPAs is scheduled to become operational in 2026, but there are no publicly available updates on construction progress.

Emissions reduction

Air Liquide's claim that its renewable energy procurement will reduce emissions by 1.4Mt a year cannot be assessed against its 30% reduction target by 2031 because the baseline is unclear.

Sasol's 2021 Carbon Disclosure Project reporting attributes a 7Mt a year reduction to the sale of the air separation units, [35] while Air Liquide's group baseline restatements from 2020 to 2024 roughly amount to 12Mt.[3637] These restatements reflect both the addition of new assets and a shift from location-based to market-based accounting.[38] However, Air Liquide does not publicly disclose how much of this increase relates to the Secunda assets.

These inconsistencies mean stakeholders cannot reconcile the figures or isolate Secunda's contribution to Air Liquide's emissions. As a result, it is not possible to judge whether the projected reductions are meaningful or sufficient to meet the stated target.

Capital investment

There are no publicly available updates regarding progress on the capital expenditure condition requiring Air Liquide to spend 50% of the committed capital investment within the first five years towards upgrading the assets at Secunda. Neither the rand amount nor the percentage share of the total spent to date has been disclosed by Air Liquide since the merger approval. This lack of transparency limits stakeholders' ability to assess compliance with merger conditions.

[33] Air Liquide 2026, A Great Milestone in our South African Decarbonization Journey
[34] Air Liquide 2026, A Great Milestone in our South African Decarbonization Journey
[35] Sasol 2021, Climate Change CDP
[36] Air Liquide 2020, Universal Registration Document
[37] Air Liquide 2026, 2025 Integrated Annual Report
[38] Air Liquide 2024, Climate Transition Plan

5. Air Liquide: global sustainability leader without an African transition plan

Air Liquide positions itself as a leader in industrial decarbonisation. Its climate transition plan highlights renewable energy procurement, electrification and net zero ambitions.[39] Independent analysis by ShareAction ranks the company ahead of its peers in several climate metrics.[40]

However, the situation at Secunda raises important questions about Air Liquide's global leadership claims in South Africa:

1. **Full electrification of steam-driven ASUs remains uncertain.** Air Liquide's reporting reveals that its electrification target stops short of committing to the retirement of all remaining steam-driven ASUs, which will leave operations in China and South Africa, where those steam-driven ASUs are, outside of the full scope of the group decarbonisation pathway, beyond 2035.[41] In Just Share's engagement with Air Liquide in early 2026, the company confirmed that full retirement still awaits strategic and financial viability.

   Without a site-specific transition plan for Secunda, investors have no basis on which to assess when or even whether full retirement is planned.

2. **Even electrified ASUs continue to rely heavily on the coal-based grid.** In 2025, Air Liquide sourced only 25% of its electricity from renewable energy globally.[42] In South Africa, only ten of the 17 Secunda ASUs are electrified, and Just Share's engagement with Air Liquide confirmed that its Group level average load factors are 19-21% for solar power and 30-35% for wind power. Because the Secunda plant runs continuously, this means that even at full contracted capacity, the site will still rely on Eskom's coal-fired electricity for roughly 65-80% of its operating hours.

   Without site-specific emissions disclosure for Secunda, any claims of projected annual emissions reductions from PPAs will continue to contradict the reliance on coal power.

This contrast in messaging between Air Liquide's global sustainability narrative and its approach to its South African operations illustrates a broader pattern in which ambitious corporate commitments exclude the assets and geographies where decarbonisation is most difficult.[43]

[39] Air Liquide 2024, Climate Transition Plan
[40] ShareAction 2025, Powering Change: Why industrial gas companies must speed up their transition to renewables
[41] ShareAction 2025, Powering Change: Why industrial gas companies must speed up their transition to renewables
[42] Air Liquide 2026, 2025 Integrated Annual Report
[43] ShareAction 2025, Powering Change: Why industrial gas companies must speed up their transition to renewables

6. Conclusion

The industrial gas sector operates largely behind the scenes but plays a crucial role in industrial decarbonisation. Its operations are energy intensive and closely linked to emissions across multiple heavy industries. In South Africa, this reality is most visible at the Secunda complex, where Air Liquide's oxygen production enables the world's largest single point source of emissions.

Despite the scale of Sasol-Air Liquide merger commitments, the absence of transparent, site-level disclosure makes it impossible to assess progress. For investors and the public, this lack of transparency is a serious concern.

Public interest merger conditions were imposed precisely because of the environmental and economic importance of the transaction. Yet without disclosure of key information, including emissions baselines, capital investment commitments and compliance reporting, stakeholders cannot verify whether these conditions are being met.

Greater transparency is therefore essential. Site-level emissions reporting, clear interim milestones and public disclosure of merger compliance would allow investors, regulators and citizens to assess progress. Without these measures, the world's largest single point source of emissions risks remaining a black box. And without transparency, confidence in South Africa's broader decarbonisation pathway will remain difficult to sustain.