Air Liquide SA (AI)

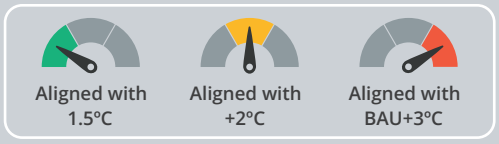
Climate Transition Analysis

Climate Action 100+ Focus Company

Overall Assessment

Planet Tracker: Air Liquide is expected to align with a 1.5°C warming scenario by 2030.

The assessment of Air Liquide's climate transition strategy unveils both commendable efforts and some areas of improvement. While the company demonstrates a commitment to its transition, there is a significant misalignment between Science-Based Targets (SBTs) and extrapolated historic emissions, projecting a concerning 243% overshoot by 2030 if additional mitigation measures are not implemented. However, sustainability KPIs and their indirect effect on executive compensation align management's commitment with a 1.5°C pathway. Air Liquide's risk management strategy also shows promise, capitalising on opportunities arising from sustainable products and services. Furthermore, their ambitious EUR 16 billion investment over the next four years, with 50% dedicated to energy transition, shows the company's ambition to change its historic trend of emissions and to achieve Carbon Neutrality by 2050. However, there's room for improvement by connecting transition investments with expected emission reductions. While Air Liquide seems poised for a 1.5°C pathway, Planet Tracker recommends a close monitoring of the company's climate transition investments outcomes, to ensure its progress toward the intended target.



This report is one of a series examining the climate transition plans of companies in the Climate Action 100+ list. This project is separate to and not affiliated with Climate Action 100+.

Download the Shareholder Engagement Sheet here.

Climate Alignment

- According to Planet Tracker's analysis, from 2019 to 2021 Air Liquide experienced a weighted absolute increase of 16% in total Scope 1, 2 and 3 emissions.
- Without further mitigation, Air Liquide will overshoot SBTs by a significant 243%, failing to align with a 1.5°C pathway by 2030 or a well-below 2°C warming scenario by 2035. However, we do not anticipate that this will happen, if the company follows through with its forward looking disclosed initiatives.

Policy and Governance

- Air Liquide engages its suppliers and customers by championing transparency and fostering innovative solutions aimed at reducing its carbon footprint; nonetheless, sustaining relationships with entities conflicting with climate policy could be seen as a potential inconsistency with the Paris Agreement's objectives.
- Planet Tracker believes that the sustainability Key Performance Indicators (KPIs) in Air Liquide's executive compensation packages are meaningful, and they would become material in a Climate Transition scenario as they indirectly affect sales growth and ROCE compensation KPIs.

Risk Analysis

- The financial assessment of the company's climate transition highlights potential opportunities, arising from increased demand for sustainable products and services that far outweigh the potential risks.
- Air Liquide's risk management strategy includes initiatives that not only mitigate emissions but also align with sustainable business offerings, marking prudent transition investments.

Strategy Assessment

- Air Liquide's roadmap toward achieving Carbon Neutrality by 2050 is backed by a EUR 16 billion investment, with 50% of industrial investment directed to energy transition, that will be rolled out over the next four years (2022-2025).
- However, the company does not consistently connect its transition investments to expected carbon emission reductions; thus, investors would need to monitor closely the company's progress towards its 1.5°C alignment by 2030, to ensure that the disclosed investment has the intended consequences.

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Company Overview

Air Liquide SA (AI:EN Paris), established more than a century ago, ranks among the world's leading industrial gas firms, catering to nearly 4 million customers across 70 nations. Over the past five years (2018-2022), the company achieved an average annual sales figure of EUR 23.3 billion and an operating profit of EUR 4.0 billion, serving a diverse array of industries. Notably, it maintained an annual average gross margin of 17.2% during this period, with revenue stemming from six key business segments outlined in Figure 1.

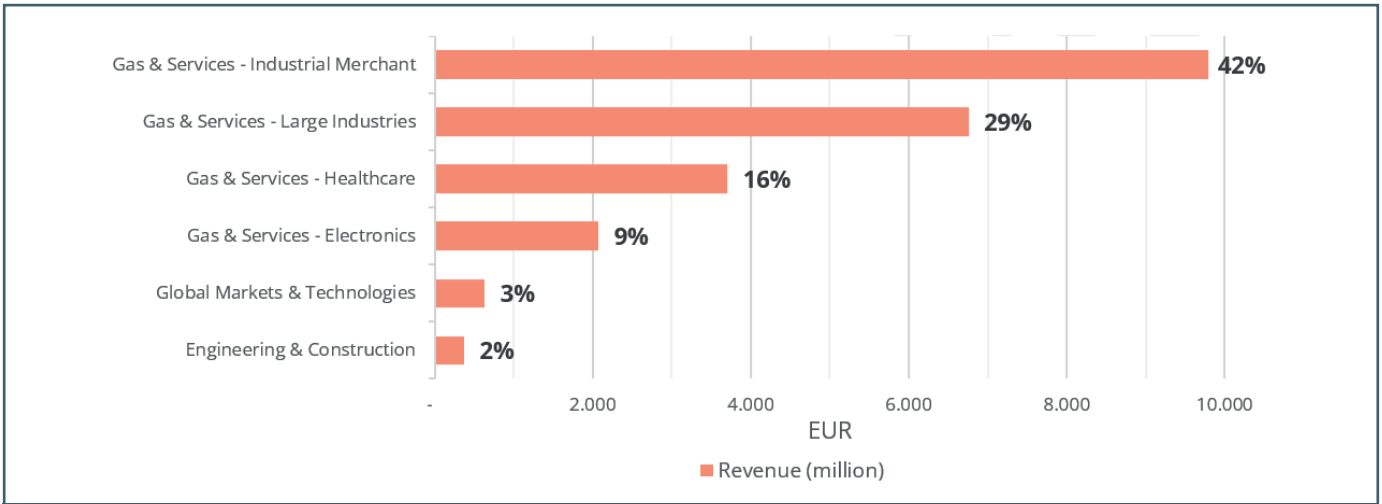

Figure 1: *Revenue (%)- Breakdown by Business Segments (5Y Avg.). Source: Air Liquide Annual Reports 2018-2022*

During 2018-2022, the Gas & Services for Industry segments, encompassing Industrial Merchant and Large Industries, contributed 71% of annual revenue, while Gas & Services for the Healthcare sector accounted for 16% of revenue.

As these Gas & Services segments collectively represented approximately 95% of the company's revenue in the past five years, the geographic distribution for these segments is presented in Figure 2.

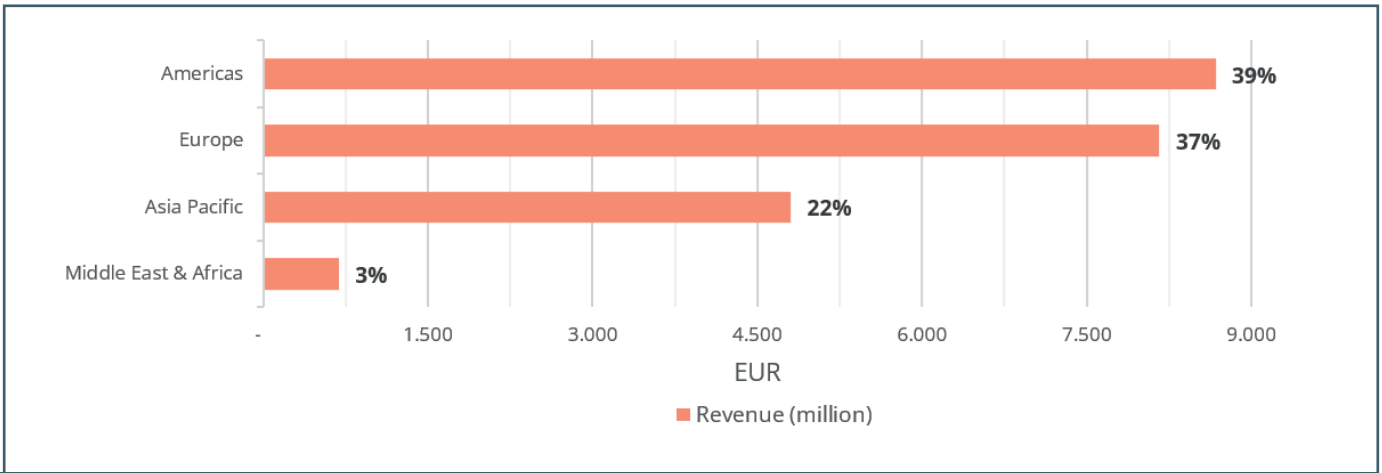

Figure 2: *Revenue (%)- Breakdown by Geography (5Y Avg.). Source: Air Liquide Annual Reports 2018-2022*

In conclusion, while acknowledging certain limitations, it is reasonable to deduce that Air Liquide's primary exposure to climate transition risks and opportunities, along with relevant policies, primarily resides within the Industrial sector. Here, the company supplies oxygen, nitrogen, argon, hydrogen, and carbon monoxide in varying quantities, ranging from large basins to small tanks, primarily in developed markets such as the Americas and Europe.

In line with these risks and opportunities, company representatives have highlighted to Planet Tracker that Air Liquide strives to master carbon capture technologies. Consequently, the company has developed a Carbon Capture service offer which is now used in several projects at an advanced level for customers within the cement and lime sector.

Climate Alignment

EMISSIONS INVENTORY

In the period spanning 2019 to 2021[1], Air Liquide reported an average annual Greenhouse Gas (GhG) emissions figure of 52,178 $KTCO_2e$, reaching a peak of 57,214 $KTCO_2e$ in 2021, and a low of 49,268 $KTCO_2e$ in 2019. Notably, in 2021, most emissions were attributed to the company's operational activities, with Scope 1 accounting for 27.2% and Scope 2 (market-based) contributing 36.4% to the total emissions.

The remainder stemmed from Air Liquide's value chain, with 20.2% from Scope 3 upstream activities[2] and 16.2% from Scope 3 downstream activities[3]. Key contributors within the Scope 3 category were Downstream Consumption at 16.2% and Upstream Processing at 14.2%, as depicted in Figure 3.

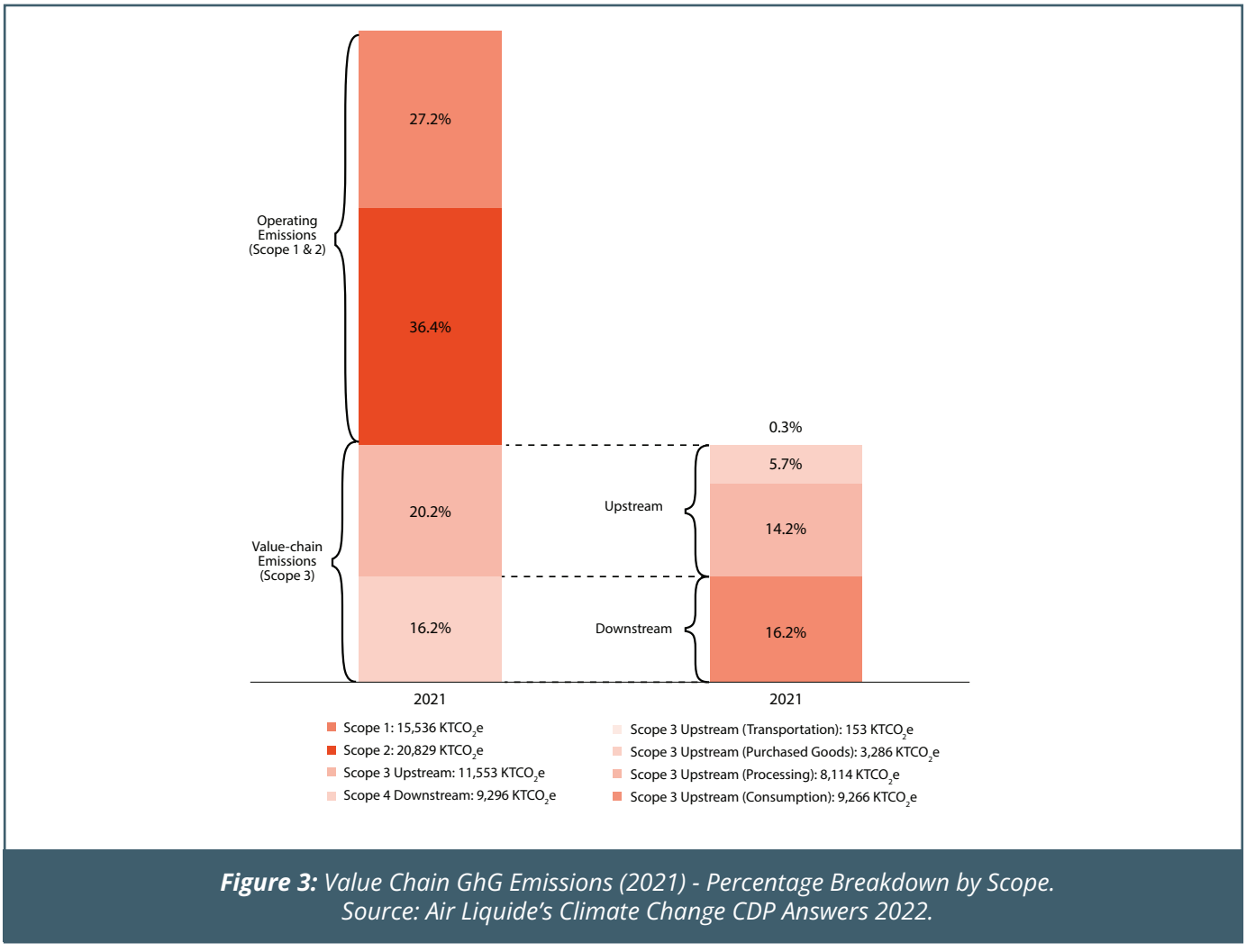

Figure 3: *Value Chain GhG Emissions (2021) - Percentage Breakdown by Scope. Source: Air Liquide's Climate Change CDP Answers 2022.*

1 While Planet Tracker aimed to analyse Air Liquide's emissions trajectory for the last five years due to the company's changes in emissions accounting methodology, we had to consider the like-for-like comparison of the last three years. Also, under the same rationale of comparability the emissions from leased assets in 2021 and 2020, and Downstream Transportation in 2021, were removed from the calculations. Please bear in mind that there were marginal.

2 Scope 3 upstream emissions include: (1) Purchased Goods - accounting for the emissions from raw ingredients and packaging materials; (2) Processing - including the emissions from "Capital Goods", "Fuel and Energy Activities" not covered in Scope 1 and 2, and emissions from "Waste from Operations"; (3) Transportation - covering emissions from "Transport & Distribution", and "Employee commuting".

3 Scope 3 downstream emissions include: (1) Consumption - covering emissions from the "Use of sold products" which stands for emissions from the sales of GhGs multiplied by the global warming potential of each gas (GWP). Notably, this approach is defined as conservative by Air Liquide, as not all GhGs sold by the Group are emitted back into the atmosphere during their use phase.

Externalities Trends and Targets

Between 2019 and 2021, Air Liquide experienced an annual average increase of 7.8% in total GhG emissions. This comprised a 1% reduction in Scope 1 emissions, a 24% growth in Scope 2 (market-based) emissions, a 40% surge in Scope 3 upstream emissions, and an 8% increase in Scope 3 downstream emissions. Consequently, Air Liquide had a weighted absolute increase of 16% in total emissions during this period, as illustrated in Figure 4[4].

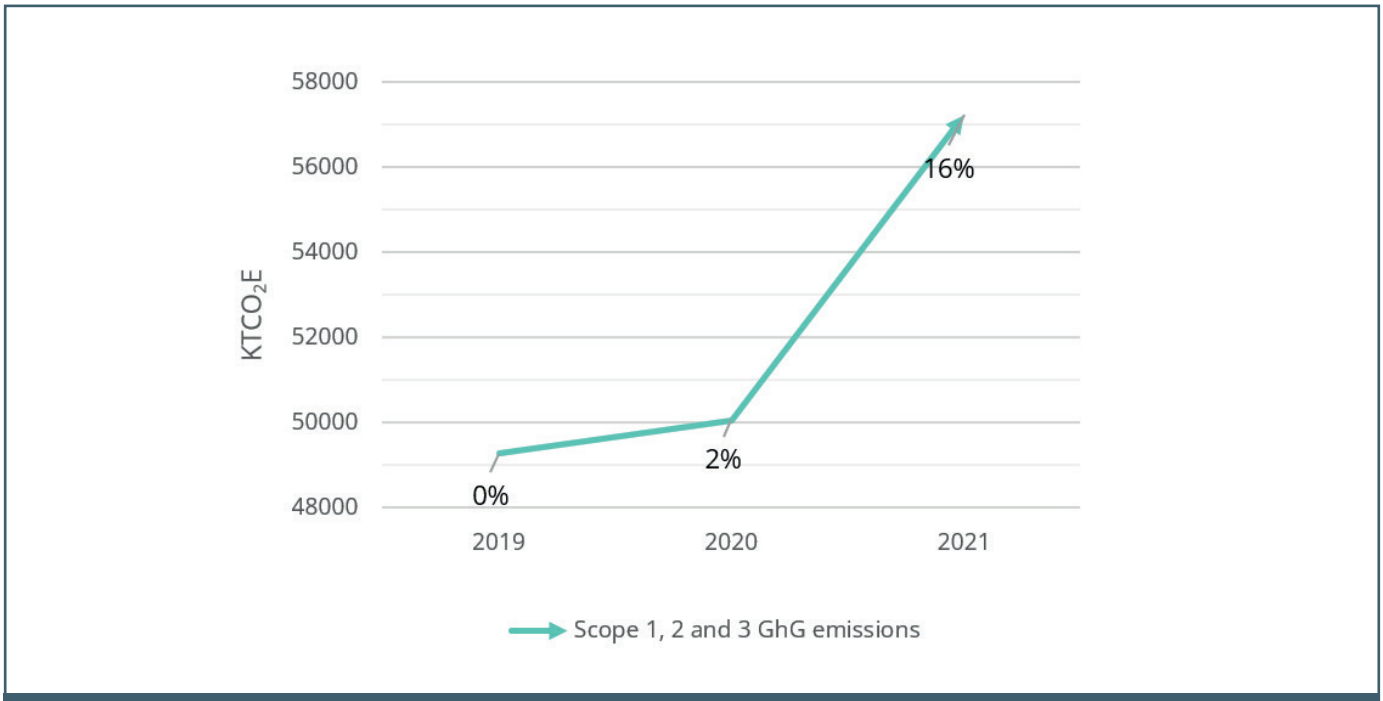

Figure 4: *Adjusted CO_2e Evolution in the last three years. Source: Air Liquide's Climate Change CDP Answers 2020-2022 and Planet Tracker Calculations.*

To project Air Liquide's emissions up to 2030, a straightforward extrapolation model that compounds the annual emissions change rate from the last three years was used. This projection assumes no additional mitigation efforts by the company and an intrinsic annual growth rate in revenue of 3.2%[5].

As mentioned, this extrapolation model does not consider Air Liquide's future decarbonisation strategy. Thus, examining the company's engagement and investments in the next sections becomes crucial to gauge whether Air Liquide will break from the historical pattern.

As it stands, the model anticipates a yearly decrease of 0.34% in Scope 1 emissions, an 11.5% annual increase in Scope 2 emissions, an 18.2% yearly rise in upstream Scope 3 emissions, and a marginal 4% yearly increase in downstream Scope 3 emissions. By 2025, Scope 1 and 2 emissions are forecasted to reach 15,328 $KTCO_2e$ and 32,171 $KTCO_2e$, respectively, and by 2030, 15,072 $KTCO_2e$ and 55,395 $KTCO_2e$. Meanwhile, upstream Scope 3 emissions are expected to reach 22,562 $KTCO_2e$ by 2025 and 52,088 $KTCO_2e$ by 2030, with downstream Scope 3 emissions projected at 10,862 $KTCO_2e$ in 2025 and 13,194 $KTCO_2e$ in 2030.

1 Note that in 2020 the company changed its Scope 2 accounting methodology from location-based to market-based, in line with the GHG protocol recommendation. Thus, to have a comparable historical trend, using 2020 location-based and market-based differential, we estimated a 2019 market-based Scope 2 GHG emissions level of 16,760 KTCO2e. Also, this historical trend includes take-overs such as the one of Sasol Air Separation Units in 2021. This was not modelled out as in the future we expect the company to keep growing which includes potentially other take-overs.

2 This is the 2019-2021 revenue growth rate which also accounts for the COVID-19 pandemic's transient economic impact, reflecting both the downturn and subsequent recovery.

Without further mitigation, extrapolated emissions by 2030 are estimated at 135,750 KTCO2e. In this scenario, 40.8% of Air Liquide's total emissions would arise from market-based Scope 2, followed closely by Scope 3 upstream emissions at 38.4%. Scope 1 activities would account for 11.1% of the company's emissions, with Scope 3 downstream activities contributing 9.7%, as depicted in Figure 5.

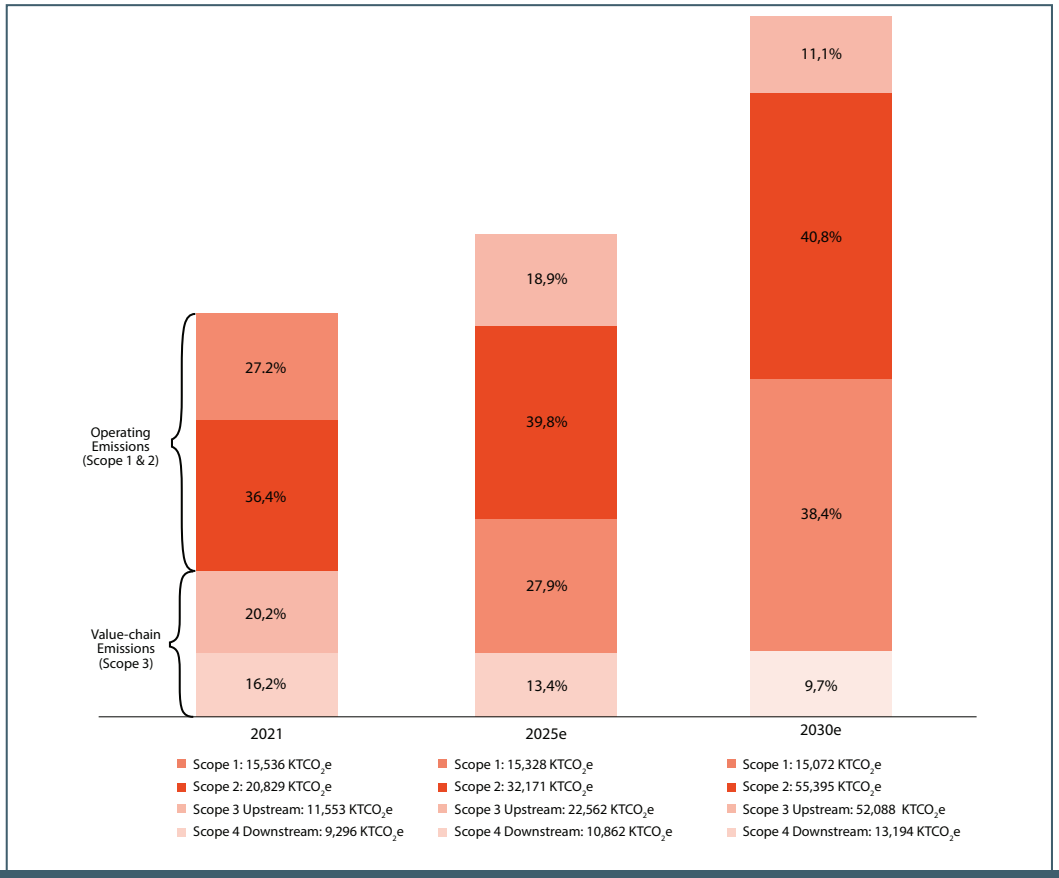

Figure 5: *Value Chain GhG Emissions (2025e & 2030e) – Percentage Breakdown by Scope. Source: Air Liquide's Climate Change CDP Answers 2020–2022; Planet Tracker Calculations.*

In 2022, Air Liquide updated its Climate Transition ambitions, aiming to align with a well-below 2°C warming scenario by 2035 under the SBTi approval[6]. The company commits to reducing absolute Scope 1 and 2 GHG emissions by 35% by 2035 from a 2021 base year. Additionally, Air Liquide aims to reduce absolute Scope 3 GhG emissions from the use of fossil fuel products sold by 60% within the same timeframe. However, it is noteworthy that the company lacks long-term Net Zero targets approved by the SBTi.

It is also important to highlight that while these transition ambitions could potentially lead to Carbon Neutrality by 2050 and include Scope 3 downstream emissions in their targets, they do not address a significant source of GhG emissions, namely Scope 3 upstream activities, particularly "fuel-and-energy activities". Thus, assessing Air Liquide's alignment with a Net Zero economy would require considering the company's total Scope 3 footprint.

6 Air Liquide representatives highlight that the company was the first of its industry to have its climate transition targets validated by the SBTi (well below 2°C according to the absolute contraction model in the absence of a Sectoral Decarbonization Approach).

To assess Air Liquide's potential alignment with Net Zero, Planet Tracker evaluated the company's 1.5°C pathway alignment by 2030, linking its targets with Air Liquide's total Scope 3 footprint. Based on the company's approved SBTs and our calculations, Air Liquide must reduce Scope 1 and 2 emissions by 23% by 2030 and Scope 3 emissions by 43% by 2030, both from a 2021 baseline. In other words, to achieve alignment, the company's total GhG footprint of 57,214 $KTCO_2e$ must be reduced to 39,604 $KTCO_2e$, equivalent to a 31% absolute reduction. However, based on the extrapolated emissions trend from a 2021 baseline and 3.2% annual revenue growth, emissions could increase by 137% to 135,750 $KTCO_2e$ by 2030, as depicted in Figure 6[7].

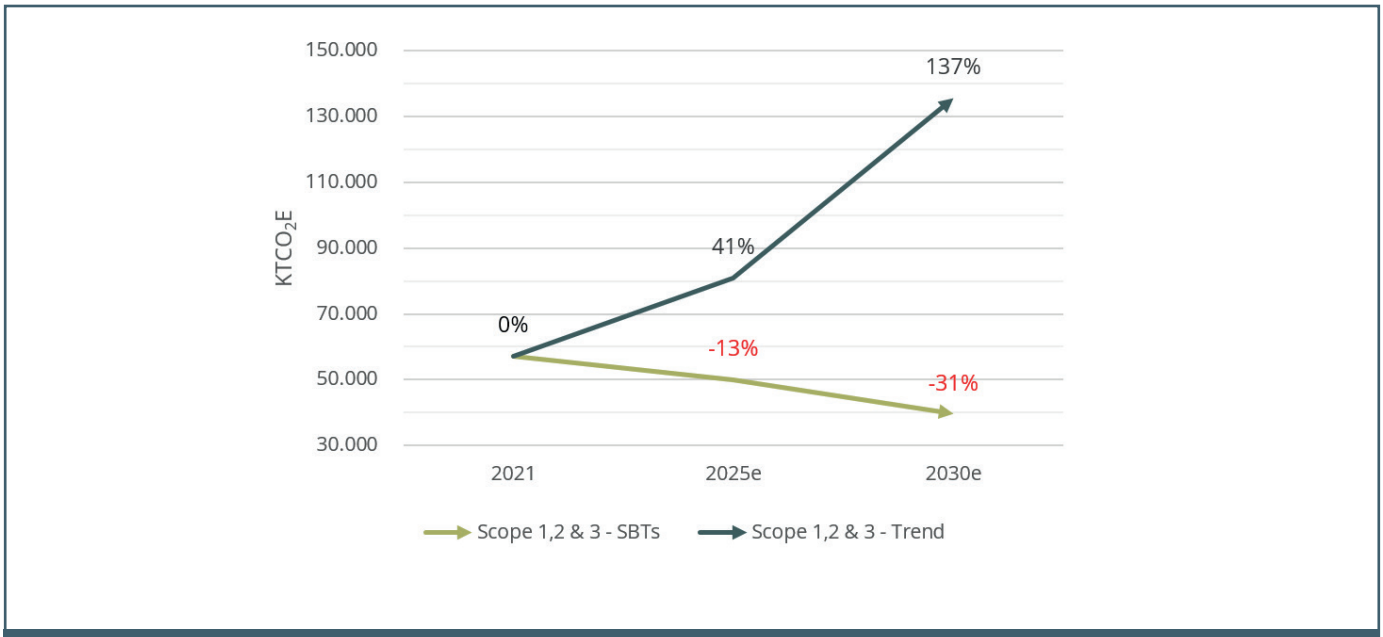

Figure 6: *Future GhG Emissions – SBTs vs Extrapolated Trends. Source: Source: Air Liquide's Climate Change CDP Answers 2020–2022, SBTi approve targets and Planet Tracker Calculations.*

Furthermore, Figure 6 illustrates that by 2030, Air Liquide's Scope 1, 2, and 3 GhG emissions are projected to exceed SBT's recommended levels by a significant 243%. Therefore, historical trends projected forward by themselves, do not support the conclusion that the company will align with a 1.5°C pathway by 2030 or a well-below 2°C warming scenario by 2035. And while the company's representatives consider that its approved science-based targets are the best evidence of its temperature alignment, at Planet Tracker we argue that a temperature alignment ultimately is the result of a plan/strategy, and a target in itself despite being externally validated is not a strategy.

Going forward, it's important to note that the company stated it aims to reach its emissions peak by 2025, followed by a reduction in GhG emissions in absolute terms. Hence, the dynamics of aligning with a Paris-agreed pathway will require further assessment of the company's Policy and Governance, Risk Analysis and Strategic Alignment as covered in the following sections.

7 Be aware that this extrapolation exercise aims to show the general future direction of the company's emissions based on its historic evolution without taking into account the company's future strategy or changes in emissions accounting methodology. As pointed out by company representatives, Air Liquide's transition trajectory will not be linear, due to factors like engineering and construction time differentials leading to a lag between decision and impact results (typically 3 years). Still, our model fulfils its function of pointing out the company's emissions direction if the status quo is preserved, and no additional mitigation actions are implemented.

Policy and Governance

ENGAGEMENT AND INFLUENCE

Suppliers' Engagement

Air Liquide's approach to supplier engagement, as revealed in their 2022 CDP Climate Change questionnaire response, comprises three key initiatives:

1. **Information Collection:** The company actively gathers climate change and carbon information from all suppliers. This comprehensive effort covers 100% of suppliers by number, procurement spend, and supplier-related Scope 3 emissions. Air Liquide employs ECOVADIS[8], a web-based platform, to evaluate supplier sustainability performance across four key themes: Environment (ENV), Labor Practices & Human Rights (LAB), Fair Business Practices (FBP), and Sustainable Procurement (SUP). Each theme is assigned a score from 0 to 100, culminating in a global score. Suppliers are categorised as:

- Responsible Supplier (score ≥ 45/100): Meets Air Liquide's sustainability requirements.
- Supplier Needing Improvement (score between 25/100 and 44/100 or one theme rated ≤20).
- Non-compliant Supplier (score ≤ 24/100).

Suppliers below the 45-point threshold must implement corrective action plans and may undergo on-site environmental audits. Failure to comply may result in the suspension of the sales relationship. The success of this initiative is gauged by the percentage of suppliers achieving an ECOVADIS score greater than 45. In 2021, this assessment campaign reached 42% of the 1,007 suppliers deemed Sustainability-Critical. Of these, 83% had a valid score, but only 59% of suppliers by procurement spend met this climate-related requirement (i.e., a score above 45).

A subsequent update in the company's 2022 Universal Registration Document[9] highlights in 2022, the number of Sustainability-Critical Suppliers amounted to 1,177, an increase of 17% compared to 2021[10]. The engagement campaign addressed 48% (or 561) of them and at the end of 2022, 78% of Sustainability-Critical Suppliers had a valid score. And while the percentual relation decreased, the results in absolute terms are increasing (i.e., 918 had a valid score in 2022, compared to 836 in 2021).

2. **Engagement and Incentivisation:** Air Liquide actively works to influence supplier behaviour through education, training, and incentives. This initiative aims to cover 100% of suppliers across various parameters, including number, procurement spend and supplier-related Scope 3 emissions. Accordingly, the company has integrated sustainability criteria into its supplier selection process, ensuring 100% compliance with climate change Key Performance Indicators (KPIs) in its Code of Conduct. Additionally, a Climate Change Supplier Selection and Management Mechanism incorporates a Corporate Social Responsibility (CSR) commitment clause in all contracts, and thus all suppliers with Air Liquide contracts accept this clause by default and must complete the Supplier Carbon Footprint questionnaire. Sustainability-Critical Suppliers (SCS) are annually identified and assessed, with 83% of them being evaluated in 2021, and 72% in 2022. The company also provides sustainability training to around 282 buyers and approximately 100 suppliers.

8 EVOVADIS is a rating platform for the social and environmental performance of supply chains.
9 Source: link
10 This base of Sustainability-Critical Suppliers has been expanded by improving the tools allowing their identification.

3. **Innovation and Collaboration:** Air Liquide also aims to drive market behaviour change by encouraging innovation which would reduce the climate impacts of its products and services. The company incentivises innovation within suppliers to reduce their overall footprint through procurement awards. This initiative seeks involvement from 100% of the company's suppliers across various dimensions. Since 2016, Air Liquide has organised the "Air Liquide Procurement Awards" to promote and recognise sustainable development initiatives. Success is measured by the number of internal projects submitted in the Sustainable Procurement category, with 13 projects submitted in 2021 and 9 in 2020.

In closing, it could be inferred that these multifaceted engagement efforts reflect Air Liquide's commitment to sustainability and its desire to foster positive change throughout its supplier network.

Customers' Engagement

Air Liquide outlines its consumer engagement strategy in response to the CDP's 2022 climate change questionnaire, emphasising education, collaboration, and innovation with its customers. The company claims a 100% coverage of customers, both in terms of the number and their customer-related Scope 3 emissions, within two initiatives.

1. **Education and Information Sharing:** Air Liquide aims to enhance transparency and integrity by openly sharing climate-related data, such as product carbon intensity, group data, and policies, with any interested customer. In 2021, the company achieved an ECOVADIS score of 68/100, earning it the "Gold" category status as an advanced supplier in Sustainable Development[11].

   In line with its transparency policy, Air Liquide provides its customers with ECOVADIS scorecards containing environmental assessments and climate-related information. Success in this initiative is measured by yearly improvements in the ECOVADIS Environment (ENV) theme score and an increase in customer and supplier requests to access Air Liquide's scorecards. In 2021, Air Liquide received 47 scorecard sharing requests, marking an 88% increase from the previous year, reflecting growing interest in the company's sustainability efforts.

2. **Collaboration and Innovation:** Air Liquide's action-oriented approach focuses on delivering cleaner industry solutions. The company offers two types of solutions:

   - **Solution 1:** Enhancing the energy and industrial efficiency of its assets, resulting in products with a lower carbon footprint than those produced directly by customers.
   - **Solution 2:** Collaborative efforts to reduce customers' carbon footprint through innovations in their industrial processes, including oxy-combustion, CO_2 capture, storage, and reuse.

   Notable projects in 2021 include:

   a. **Kairos@C Project:** A joint effort with BASF in Antwerp[12] aimed at avoiding 14,200 $KTCO_2e$ emissions during the first 10 years of operation by implementing large-scale CO_2 capture, liquefaction, transport, and storage.
   b. **Decarbonization Partnership with ArcelorMittal:** Collaboration to accelerate steel production decarbonisation in the Dunkirk basin, targeting a reduction of 2,850 $KTCO_2e$ in annual CO_2 emissions by 2030.
   c. **Long-Term Contract with Shagang:** Agreement to construct and operate a low-carbon air gas plant with a daily oxygen capacity of 3,800 tonnes, contributing to emissions reduction efforts.

   Furthermore, in its 2022 Universal Registration Document, Air Liquide highlights having a large portfolio of technological solutions and services to accompany its Large Industries customers in their path to decarbonisation.

11 According to Air Liquide only 5% of suppliers fall within this (Gold) category, which is the highest ranking; Source: Air Liquide's 2022 CDP Climate Change – Section C12.1b.
12 Source: 'Air Liquide and BASF welcome support from European Innovation Fund for joint CCS project'

According to the company, these would include the supply of low-carbon industrial gases, the transformation of its customers' industrial processes and CO_2 management. Moreover, aligned with the company's imperative engagement with its value chain to achieve its transition goals, in 2022 Air Liquide pledged to have 75% of its 50 largest customers committed to carbon neutrality by 2025 and 100% by 2035. Still, details regarding how much of the company's footprint those 50 largest customers represent were not offered. At Planet Tracker we would like to see further information in this regard.
In summary, these initiatives reflect Air Liquide's commitment to engaging its customers in climate-related actions, promoting transparency, and fostering innovative solutions to reduce carbon footprints across its value chain.

Influence on Policymakers

Air Liquide asserts its commitment to achieving carbon neutrality by 2050 and supporting the Paris Agreement[13]. The company supports that engaging with policymakers and trade associations is vital to achieving its goals. Moreover, it maintains that all advocacy and lobbying activities are aligned with these commitments.

However, while Air Liquide shares its high-level positions on the hydrogen's role in the energy transition, the EU Fit for 55 Package, and the low-carbon economy in its Charter Engagement with Public Stakeholders document[14], it does not specify its engagement on individual climate-related regulations. Similarly, the company provides links to its EU and French Transparency Register pages, outlining regulations it has engaged with, such as the EU rules on Gas, the European Partnership for Clean Hydrogen, and the Industrial Emissions Directive. Still, omits instances of opposition to certain climate-related regulations, such as making free allowances under the EU Emissions Trading System (ETS) conditional on investments in energy efficiency.

Rather, it advocates for a separate ETS for road transport, suggesting that different sectors should have a separate pool of allowances (Comments to EU Commission, November 2021)[15].

Moreover, Air Liquide conducted an annual review of its industry association memberships, identifying one case of misalignment within the American Fuel & Petrochemicals Manufacturers (AFPM), which the company has taken steps to address. However, the company's InfluenceMap[16] assessment reveals a more complex landscape. According to the NGO, Air Liquide currently maintains its membership within at least six industry associations that are visibly misaligned with the Paris Agreement. These include the American Fuel & Petrochemical Manufacturers (AFPM), Mouvement des Entreprises de France (MEDEF), National Association of Manufacturers (NAM), Japan Chemical Industry Association (JCIA), German Chemical Industry Association (VCI), and Offshore Energies UK (OEUK).

Furthermore, InfluenceMap highlights another seven industry associations of which Air Liquide is a member that could be potentially misaligned with the Paris Agreement. These include the Hydrogen Council, China Petroleum and Chemical Industry Federation, European Round Table for Industry (ERT), American Chemistry Council (ACC), Australian Hydrogen Council, Hydrogen Europe, and European Chemical Industry Council (Cefic). It is noteworthy that some of these associations were not included in Air Liquide's review.

Delving deeper into specific examples of misalignment, InfluenceMap's analysis revealed that:

- AFPM has consistently criticised the US Environmental Protection Agency's Renewable Fuel Standard proposal, most recently opposing it in a December 2022 blog post. Additionally, AFPM opposed the US Light Duty Vehicle Emissions Standard in a June 2022 letter to President Biden.

13 Source: Air Liquide's 2022 Annual Report – p. 25.
14 Source: Charter Engagement with Public Stakeholders – Feb 2023.
15 Source: link
16 Idem 14.

- NMA's CEO, Rich Nolan, appeared to oppose the US Environmental Protection Agency's pollution rule in a series of comments in February 2023. NMA also advocated against the proposed Federal Acquisition Regulation's GhG emissions targets in a joint comment on the proposal in February 2023. These positions stand in contrast to Air Liquide's commitment to the Paris Agreement.

- VCI expressed its unsupportive stance toward the EU Emissions Trading Scheme (ETS) revision, criticising the restrictions around free allowances as an "unnecessary double burden." In a September 2022 Euractiv article, VCI advocated for postponing a planned increase in the German carbon price from 2023 to 2024. These positions diverge from Air Liquide's sustainability objectives.

Therefore, while Air Liquide engaged with AFPM leadership to seek clearer support for the Paris Agreement, key cases of material and potential misalignment with the Paris Agreement, as identified by InfluenceMap, remain unaddressed.

In summary, while Air Liquide actively engages with climate policy in the EU and US and supports specific policies promoting green and blue hydrogen, it opposes the full ambition of certain key climate regulations, such as the EU ETS. Furthermore, although the company disclosed one misalignment with an industry association, and addressed it, it still maintains links to organisations at odds with climate policy, falling short of some investor expectations. What is more, despite Air Liquide's intent to change the misaligned organisations from within[17], terminating its membership in such associations is not clear in terms of success/failure KPIs nor time-bound.

17 The company argues asking all its associations, globally, to explicitly align with the Paris Agreement's goals or contribute to net zero pathways as outlined by the International Energy Agency.

MANAGEMENT ALIGNMENT

Sustainability Targets Oversight

A. The Board

According to the company, Air Liquide's Board of Directors, as outlined in Table 1, plays a key role in shaping the company's activities in line with its corporate interests while considering social and environmental implications. It is responsible for setting the company's major strategic directions and ensuring their execution through the Executive Management.

Moreover, the Board oversees day-to-day operations, which includes regular assessments of investments and opportunities. It systematically monitors investments related to the energy transition, aligning them with the Group's environmental goals. For instance, it incorporated climate objectives into the Sustainable Development strategy and defined growth targets for hydrogen energy in 2021.

Table 1: *Board of Directors. Source:* link

Committee	Audit & Accounts	Environment & Society	Remuneration	Appointments & Governance
Siân Herbert-Jones	Chair			
Anette Bronder	✓			
Aiman Ezzat	✓			
Annette Winkler		Chair		✓
Geneviève Berger		✓		
Philippe Dubrulle (Employee Director)		✓		
Xavier Huillard			Chair	✓
Fatima Tighlaline (Employee Director)			✓	
Kim Ann Mink			✓	
Bertrand Dumazy				✓

Specifically, the Environment and Society Committee, an independent subset of the Board of Directors, focuses on Corporate Social and Environmental Responsibility matters. This committee receives updates from the Executive Committee members responsible for sustainable development, evaluating the Group's sustainable development strategy, its execution, and progress. The Committee subsequently reports its findings to the Board of Directors.

The Environment and Society Committee's responsibilities encompass:

- **Strategy and Commitments:** Assessing and recommending the Group's sustainable development strategy and commitments.
- **Environmental and Societal Actions:** Monitoring the Group's environmental and societal initiatives, including air quality, energy consumption, and greenhouse gas emissions.
- **Risk Assessment:** Evaluating environmental and societal risks in collaboration with the Audit Committee, considering their impact on investments, performance, and reputation.
- **Reporting and Compliance:** Supervising reporting systems and the preparation of extra-financial information, ensuring compliance with CSR legislation.
- **Extra-financial Performance:** Reviewing the Group's Extra-financial Performance Declaration and conducting an annual review of summarized extra-financial ratings pertaining to the Group.

In summary, Air Liquide's Board of Directors and its Environment and Society Committee are actively involved in shaping the company's sustainable development strategy and ensuring its alignment with environmental and societal objectives. This oversight extends to risk management, compliance, and performance evaluation in the realm of sustainable development.

B. The Management

According to Air Liquide, the CEO holds a pivotal role in steering the company's climate and sustainable development strategy. Alongside the Board of Directors and relevant entities, the CEO shapes and ensures the successful implementation of the Group's sustainable strategy, with a particular focus on climate objectives. This includes contributions to the development of the hydrogen ecosystem.

Additionally, the Chief Sustainability Officer (CSO) assumes a crucial role in supervising the environmental and climate department. The CSO actively participates in crafting the sustainable development strategy and oversees the execution of climate objectives. They provide assessments and monitoring results on climate-related matters to the Environmental and Society Committee.

The CSO's responsibilities encompass:

- **Strategy Development:** Defining the sustainable development strategy and climate objectives, such as implementing climate roadmaps across all business units. This evaluation factors in market dynamics and the company's climate goals.
- **Recommendations and Monitoring:** Advising the CEO and the Environmental and Society Committee on the company's strategy and commitments to sustainable development, including climate issues.
- **Deployment Oversight:** Monitoring the execution of environmental and societal actions, including areas like climate, air quality, energy consumption, and greenhouse gas emissions.
- **Risk Assessment:** Evaluating environmental and societal risks and their impact on investments, financial performance, and the company's reputation.
- **Engagement with Ratings:** Managing Air Liquide's approach to extra-financial ratings and validating the engagement strategy.

Management Compensation

According to the company, Air Liquide's 2022 remuneration policy for Executive Officers adheres to its recurring practices, with the CEO's remuneration structured as follows: ~25% fixed remuneration, ~35% target variable remuneration, and ~40% long-term incentives (LTI). The maximum variable component is capped at 150% of the fixed remuneration, as illustrated in Figure 7[18].

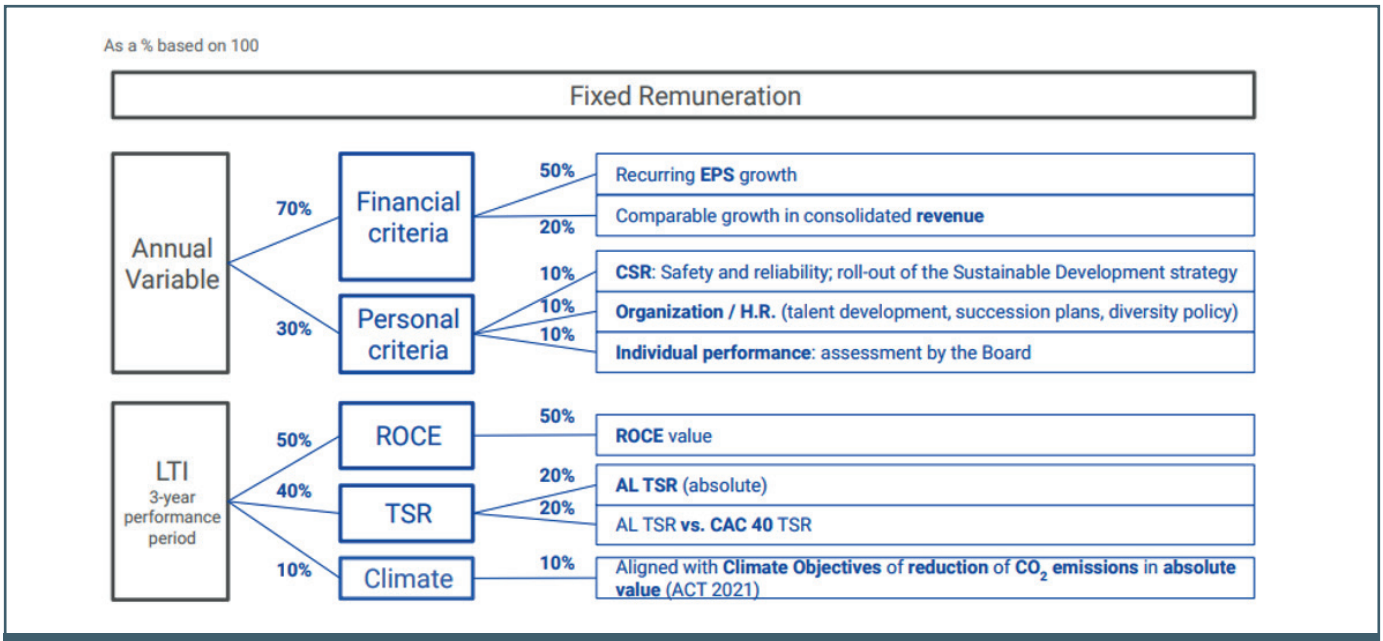

Figure 7: *Executive Remuneration Breakdown. Source: 2022 Universal Registration Document.*

Breaking it down, short-term remuneration tied to the Sustainable Development strategy accounts for about 3.5% (35% multiplied by 10% allocated to CSR-related Personal Criteria). Meanwhile, long-term performance remuneration linked to climate objectives represents roughly 4% (40% multiplied by the 10% allocated for Climate targets). Consequently, Planet Tracker assessment finds the sustainability Key Performance Indicators (KPIs) in executive compensation packages noticeable, but not material[19].

However, company representatives pointed out that in the long term, all results depend on the company's climate transition. In other words, according to the company, Air Liquide's main growth opportunities are in the energy transition and the development of new related technologies. Thus, indirectly, this dependency would be affecting sales growth and ROCE.
As a result, Planet Tracker assumes a high alignment of management incentives with the 1.5°C transition goal, despite the direct link between transition targets and executive remuneration, being only noticeable[20] at this time.

18 For more details check the 2022 Universal Registration Document.
19 According to Planet Tracker's recently published paper on management remuneration linked to sustainability KPIs, above 10% of total compensation is considered 'material' while between 10% and 5% is only 'noticeable'. For more details please see our Plastic Compensation paper and Best Practice Guide Compensation.
20 Idem 18.

Risk Analysis

FINANCIAL IMPACT

Air Liquide employs a structured risk management approach to identify and address risks, particularly those associated with its climate transition. This process adheres to a framework overseen by the French Financial Markets Authority (AMF) and involves multiple departments, including Finance, Sustainable Development, Group Control and Compliance, Legal, Safety, and Industrial Systems.
In assessing climate transition risks, Planet Tracker identified Policy and Market drivers as the most significant sources of associated risks and opportunities.

External Policy Drivers[21]

Air Liquide recognises external policy drivers as a significant climate transition risk and in its 2022 CDP Climate Change response, the company highlighted the potential financial impact related to Carbon Pricing Mechanisms (CPMs). This risk pertains to the cost Air Liquide may incur for each tonne of GhG emitted in its operations, such as air gases and hydrogen production.

Furthermore, Air Liquide operates in regions with quota systems for GhG emissions, like the European Union's Emission Trading Scheme (ETS). In 2019, this directive affected all its cogeneration sites in Germany, France and the Netherlands, as well as all of the other company's large hydrogen production sites in Europe. Compliance with such systems can impact the company's operations and potentially result in additional taxes beyond quotas.

Nevertheless, the company emphasises having provisions in most contracts to pass on the increased costs due to carbon taxes to its customers. Consequently, Air Liquide estimates exposure to only 10% of the extra cost, minimising its financial risk.

This exposure amounts to a maximum of EUR 15 million per year or 0.4% of its five-year average annual operating profit[22]. The company views this risk as "likely" to be realised in the next three to six years.

Air Liquide also sees an opportunity in renewable energy sourcing (i.e., Scope 2 mitigation) aimed at reducing its CO_2e emission costs. The company intends to increase its use of renewable energy and support a responsible supply chain through direct contracts with producers (Power Purchase Agreements or PPAs).

Consequently, in 2021, Air Liquide purchased 6.8 TWh of renewable electricity, with the goal to reach 10 TWh[23] of renewable energy purchased by the end of 2021 – significantly reducing its GhG emissions by 5,000 $KTCO_2e$.

This shift to renewable energy could save Air Liquide up to EUR 250 million[24], equivalent to 6.2% of its current five-year average annual operating profit.

Notably, this opportunity does not carry the 90% pass-through factor as in the previous risk example where most costs would be passed on to customers. Air Liquide regards this opportunity as "virtually certain" to be realised in the next three to six years.

For a broader assessment beyond GhG emission quotas[25], Planet Tracker calculated the potential impact of anticipated Carbon Pricing Mechanisms (CPMs) on all of Air Liquide's forthcoming operational GhG emissions. Utilising the Inevitable Policy Response (IPR) carbon pricing for 2030[26], and the geographic origin weighting over the last three years, the projected financial effect of Scope 1 and 2 emissions by 2030 could reach EUR 3.5 billion per year[27]. Under a 90% cost pass-through provision, this impact would be reduced to EUR 352 million annually, equivalent to 8.8% of the company's current five-year average annual operating profit.

21 Source: Air Liquide's 2022 CDP Climate Change – Section C2.3a and C2.4a
22 Please be aware that these contract dynamics allowing carbon pricing costs to be passed on could change in the future based on the length of these contracts, and the company's ability to pass them on in perpetuity.
23 10 TWh = 10 000 000 MWh
24 Based on an internal CO_2e emissions cost of EUR 50 per tonne of CO_2e used for large project investments by Air Liquide.
25 As these will become irrelevant under a Net Zero economy.
26 The Inevitable Policy Response to Climate Change (2021)
27 Average exchange rate in 2022: USD 1 = EUR 0.951 -> Source: link

In summary, while Air Liquide actively considers the potential of opportunities linked to reducing its GhG footprint, its risk assessment might appear underrepresented when considering all operational emissions under a no-further-mitigation scenario.

Market Impact Drivers[28]

In Air Liquide's climate transition journey, the market dynamics stand out as the primary source of both risks and opportunities. While the risk of customer loss appears minimal, the opportunities arising from the shift towards a Net Zero economy are substantial.

Consequently, Air Liquide's 2022 CDP Climate Response section C2.4a highlights two key opportunities:

1. **Development/Expansion of Low-Emission Goods and Services**

- *Sustainable Hydrogen for Sulphur Removal:* Air Liquide aims to capitalise on the demand for sustainable products. For instance, sustainable hydrogen (H2) is used for sulphur removal, addressing environmental concerns in the Oil & Gas sector[29]. By offering low-carbon H2 solutions, Air Liquide anticipates a potential additional annual revenue of EUR 500 million, likely to materialise within the next three years. This would translate into an annual increase in recurring operating profit of EUR 86 million, equivalent to over 2.1% of the company's current five-year average annual operating profit.

- *Biomethane Production:* The company is engaged in biomethane production and purification, contributing to cleaner road freight transport. Biomethane is positioned to reduce emissions significantly. Air Liquide currently operates in a market valued at EUR 130 million. Projections suggest substantial growth by 2025, with expected total revenue ranging from EUR 330 million to EUR 480 million. This growth could yield an additional biomethane market turnover of up to EUR 350 million, or an extra EUR 60 million in recurring operating profit. In total, this could represent a 1.5% increase in the company's current five-year average annual operating profit.

  The overall upshot of these opportunities is an estimated 3.6% increase in annual operating income within the next three years, driven by growing demand for sustainable products and services. The company estimates a realisation probability of these two opportunities that goes from "more likely than not" to "very likely".

2. **Resource Substitutes/Diversification for Long-term Resilience**

Air Liquide's long-term strategy is to deliver regular and sustained growth, with a strong support of energy transition (including hydrogen as a key part). The company plans to invest EUR 8 billion by 2035, aiming to triple hydrogen revenues from EUR 2 billion to over EUR 6 billion during the same period. By expanding H2 production and product development over 15 years, Air Liquide targets an additional EUR 4 billion in annual revenue by 2035[30]. This would translate into a substantial increase of approximately EUR 687 million in the company's annual operating profit, equivalent to over 17.1% of its current five-year average annual operating profit.

In summary, the opportunities arising from increased demand for sustainable products and services far outweigh the potential risks in terms of financial impact. Air Liquide is well-positioned not only to mitigate expected climate transition risks but to thrive in a Net Zero economy's growing demands.

28 Source: Air Liquide's 2022 CDP Climate Change – Section C2.4a

29 Sulphur oxides from fuel combustion can cause respiratory problems in humans, are responsible for the pollution fogs over urban areas, and for acid rain that causes deforestation and water acidification. Sulphur also causes rapid degradation of vehicle catalytic converters, which degrades its ability to filter fine particles. Therefore its removal is paramount.

30 From its H2 activity alone, according to company representatives

RISK MANAGEMENT

Following the prior disclosure of climate transition risks and opportunities, Air Liquide has outlined a set of initiatives aimed at risk mitigation and capitalising on opportunities.

External Policy Risk Management

Regarding potential Carbon Pricing Mechanisms (CPMs), according to the company, Air Liquide has devised a comprehensive response strategy consisting of three key initiatives:

1. **Regulation Monitoring:** The company closely tracks regulatory developments, particularly in relation to certificate shortages and reporting requirements. This ensures a proactive stance in compliance.

2. **Energy Market Insight:** Air Liquide's energy team maintains a deep understanding of carbon markets and related energy markets. They also conduct energy sourcing projections in the markets where the company operates, ensuring readiness for market dynamics.

3. **Contractual Provisions:** The commercial team ensures that contractual provisions are in place with customers to pass on any associated costs in line with the contract terms.

While quantifying precise costs for this risk management remains challenging due to overlapping responsibilities, Air Liquide estimates an annual expenditure of approximately EUR 3 million for CPMs risk management. This cost is expected to remain relatively constant, even though new geographies will adopt CPMs by 2025, and thus, the tax amount is expected to increase.

As for opportunities related to avoiding the impact of CPMs, Air Liquide is committed to increasing its reliance on renewable energy sources, promoting responsible supply chains, and reducing Scope 2 emissions. Key initiatives include:

- **Renewable Electricity Procurement:** Air Liquide actively engages in direct contracts with renewable energy producers through Power Purchase Agreements (PPAs). In 2021, the company signed long-term PPAs with 'TotalEnergies' for 15 megawatts of offshore wind electricity in Belgium and with Vattenfall for 25 megawatts of offshore wind capacity in the Netherlands.

- **Investment for Opportunity:** To achieve this long-term opportunity, the company made some early investments. Air Liquide estimates the cost of transitioning to 10TWh of renewable energy at approximately EUR 30 million. Additionally, based on their internal power market assessment, the estimated over-cost for renewable power attributes averages EUR 3 per MWh, totalling EUR 30 million as well. Hence dreaming this as a cost-efficient investment. However, the company acknowledges the unpredictability of PPA prices and notes that these cost estimates may vary considerably due to market dynamics.

In summary, Air Liquide has implemented a robust strategy for managing external policy risks and seizing renewable energy opportunities. And while management costs are estimated, the company strives to remain adaptable to evolving market conditions.

Market Impact Management

In addition to the previously mentioned risk mitigation initiatives, Air Liquide has developed projects aimed at expanding low-emission goods and services to tap into the growing demand for sustainable products. Key projects focus on hydrogen solutions and biomethane production:

1. Hydrogen Solutions[31]

Air Liquide is actively promoting the use of hydrogen technology for desulphurising fuels. With approximately 150 hydrogen production units worldwide, the company's hydrogen solutions prevent the release of approximately 1.7 metric tonnes of sulphur oxides annually.
The company is committed to investing EUR 8 billion by 2035 to bolster its hydrogen solutions. In the short term, it has commissioned the world's largest PEM (Proton Exchange Membrane) electrolyser in Quebec, producing up to 8.2 tonnes of renewable hydrogen per day and avoiding nearly 27 $KTCO_2e$ emissions annually. Air Liquide plans to allocate 20% of the EUR 8 billion, or EUR 2 billion, to such solutions over the next 15 years, equating to an annual investment of EUR 133 million.

Furthermore, Air Liquide plans to direct 80% of its investment toward building its hydrogen capacity to triple its hydrogen revenues from EUR 2 billion to over EUR 6 billion by 2035. Collaborative projects like the hydrogen station at Incheon International Airport in South Korea exemplify the company's commitment to expanding its presence in the mobility market, representing an annual investment of EUR 266 million for the next 15 years.

2. Biomethane Production[32]

Air Liquide is actively exploring sustainable technologies, including biomethane, to contribute to a low-carbon society. The company has expertise spanning the entire biomethane value chain, from biogas purification to injection into natural gas networks, liquefaction, and distribution for clean transportation.

With the commissioning of its largest biomethane production unit in Rockford, Illinois, and another unit in Delavan, Wisconsin, Air Liquide's biomethane production capacity will reach 1.8 TWh per year. Implementing one biomethane site incurs marketing and development costs of approximately EUR 1 million. To achieve its ambitions, Air Liquide estimates the need for a minimum of two new production sites by 2025, entailing a cumulative investment of approximately EUR 2 million.

In conclusion, Air Liquide's risk management strategy includes initiatives that not only mitigate emissions but also align with sustainable business offerings, marking prudent transition investments.

31 Source: Air Liquide's 2022 CDP Climate Change – Section C2.4a - Opp2 – "Strategy to realize opportunity and explanation of cost calculation".
32 Source: Air Liquide's 2022 CDP Climate Change – Section C2.4a – Opp3 – "Strategy to realize opportunity and explanation of cost calculation".

Strategic Assessment

CAPITAL ALIGNMENT

Air Liquide has committed to achieving carbon neutrality by 2050, focusing on emission reductions across its assets and operations. To attain this goal, the company plans to implement new technologies, enhance efficiencies, increase renewable energy procurement, and invest in carbon capture initiatives.

Additionally, Air Liquide seeks to collaborate closely with its customers to find solutions that reduce their carbon footprint. The primary objective is to revolutionise the approach of industrial customers towards production, resulting in the same end product with significantly reduced carbon emissions. For industries with limited alternatives, such as cement, Air Liquide will employ carbon capture methods and partner with others for long-term storage[33]. In 2022, the company identified 17 activities eligible for climate change mitigation out of a total of 94 activities listed in delegated acts, with sustainable hydrogen production being the most significant, according to the company.

To support these objectives, in its 2022 Universal Registration Document[34] Air Liquide has disclosed that investment decisions will be increased to a record level, to reach about EUR 16 billion over the 2022-2025 period, with half of the industrial investments being dedicated to the energy transition[35]. This substitutes the previous investment ambition to invest around EUR 8 billion in the low-carbon and renewable hydrogen markets by 2035, as disclosed in the previous section[36]. As an example, in 2022, Air Liquide allocated EUR 308 million to innovation expenses, including EUR 100 million specifically for energy transition.

In summary, Air Liquide's transition strategy is integral to its product development and revenue growth in a Net Zero economy. However, the company does not consistently connect its transition investments to expected carbon emission reductions, making it challenging to ascertain alignment with the 1.5°C target by 2030. Furthermore, Air Liquide anticipates a turning point in 2025 when its emission trend will shift from growth to decline. However, the specific factors driving this inflexion point and the timeline for realising the benefits of current investments leading to carbon neutrality are not clearly explained.

TRANSITION APPRAISAL

Planet Tracker conducted an analysis of Air Liquide's Climate Transition strategy, scrutinising its GhG emissions evolution from 2019 to 2021 and assessing its alignment with the Paris Agreement. In 2022, Air Liquide revised its Climate Transition ambitions, seeking approval from the SBTi to align with a "well-below 2°C" warming scenario by 2035 and ultimately achieve Carbon Neutrality by 2050[37]. To attain these goals, the company commits to reducing absolute Scope 1 and 2 GhG emissions by 35% by 2035 from a 2021 baseline. Additionally, Air Liquide pledges to reduce absolute Scope 3 GhG emissions from fossil fuel products sold by 60% within the same timeframe. However, according to company representatives, this Scope 3 activity is relatively small as Air Liquide is not a fossil fuel product seller.

Furthermore, while it is noteworthy that the company lacks SBTi-approved long-term Net Zero targets, Air Liquide is participating in the SBTi-led Expert Advisory Group to develop a Sector Decarbonization Approach (SDA) for the chemical sector, with a special focus on Scope 3 emissions.

33 Please bear in mind that due to their limited scalability, carbon capture projects are considered by Planet Tracker an unproven transition technology at the time of this report.
34 Source: link
35 Referring to industrial investment decisions above EUR 5 million.
36 As clarified by the company representatives, this change came as Air Liquide recognised the current upside of accelerating its hydrogen, and energy transition strategy as a whole.
37 According to the company, Air Liquide is the first in its industry to obtain validation from the SBTi.

To evaluate Air Liquide's potential alignment with a Net Zero trajectory, Planet Tracker analysed the company's 1.5°C pathway alignment by 2030. This assessment involved advancing the company's targets and extending them to cover Air Liquide's complete Scope 3 footprint. Based on the company's approved SBTs and Planet Tracker's calculations, Air Liquide would need to reduce Scope 1 and 2 emissions by 23% by 2030 and Scope 3 emissions by 43% by 2030, relative to a 2021 baseline. In essence, this translates to reducing the company's total GhG footprint from 57,214 $KTCO_2e$ to 39,604 $KTCO_2e$, constituting a 31% absolute reduction. However, if emissions continue on their extrapolated trend, from a 2021 baseline coupled with 3.2% annual revenue growth, emissions could surge by 137% to 135,750 $KTCO_2e$ by 2030. Consequently, the contrast between the projected emissions trend and the SBTi's recommended level amounts to 96,146 $KTCO_2e$. It's important to note that Air Liquide foresees emissions peaking in 2025 and subsequently declining. According to company representatives, this dynamic is explained by the company's transition trajectory not being linear due to factors like engineering and construction time differentials leading to a lag between decision and impact results (typically 3 years).

Furthermore, to evaluate Air Liquide's commitment to bridging this transition gap, a review of the company's Policies, Governance, and Risk Management was conducted. The company's customer engagement strategies display commendable initiatives, potentially resulting in annual emissions mitigation of approximately 4,270 $KTCO_2e$ by 2030, based on the case studies disclosed[38]. Similarly, its supplier engagement initiatives appear ambitious, supported by stringent procurement policies.

However, there are concerns regarding the company's affiliations with certain policies and trading organisations that convey mixed messages about their alignment with the Paris Agreement. These concerns persist despite Air Liquide's intent to change the misaligned organisations from within[39], as terminating its membership in such associations is not clear in terms of success/failure KPIs nor time-bound.

One noteworthy aspect of Air Liquide's transition strategy is its Climate Risk Assessment and Management, which, despite some potential underestimation of the financial impact of CPMs, offers a sensible overview and management of key risks and opportunities. Accordingly, the company not only seeks to mitigate current emissions by offering more sustainable products but also aims to expand its market in line with the Climate Transition towards a Net Zero economy.

In conclusion, Air Liquide's report underscores a company committed to achieving its own transition and driving transformation across its value chain. While there are certain gaps in its Climate Transition strategy, especially when Net Zero is considered, the company's alignment with a 1.5°C pathway by 2030, seems to have a high likelihood. Especially due to Air Liquide's accelerated investment of EUR 16 billion over the next four years (2022-2025), with 50% of industrial investments[40] in its energy transition.

Planet Tracker expects Air Liquide to align with a 1.5°C pathway by 2030[41]

38 This example refers to the Kairos@C project and the Dunkirk Basin project.
39 The company argues asking all its associations, globally, to explicitly align with the Paris Agreement's goals or contribute to net zero pathways as outlined by the International Energy Agency.
40 Above EUR 5 million.
41 Based on the data accessed by Planet Tracker until September 2023.

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Planet Tracker is a non-profit financial think tank producing analytics and reports to align capital markets with planetary boundaries.Our mission is to create significant and irreversible transformation of global financial activities by 2030. By informing, enabling and mobilising the transformative power of capital markets we aim to deliver a financial system that is fully aligned with a net-zero, nature-positive economy. Planet Tracker proactively engages with financial institutions to drive change in their investment strategies. We ensure they know exactly what risk is built into their investments and identify opportunities from funding the systems transformations we advocate.

PLANET TRACKER'S CLIMATE TRANSITION ANALYSIS – CHEMICAL COMPANIES

As part of its material system transition programme, Planet Tracker is examining the transition plans of the chemical companies covered by the Climate Action 100+ list. Our goal is to provide investors with the key information and analysis they need to be able to hold chemical companies to account for the quality of their climate transition plans and their execution against those plans, and to encourage them to use this information to engage effectively with these companies with the ultimate aim of driving the sustainable transformation of the chemical sector.

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