Climate Change Statement 2023



Climate Change and Decarbonisation

As a dynamic global lithium company, Allkem accepts the international scientific consensus of the Intergovernmental Panel on Climate Change (IPCC), recognises the 2015 Paris Agreement, and supports its commitment to limit global average temperature rise to below 2°C and pursue 1.5°C. This requires immediate systematic reductions in global CO₂ emissions, to reach carbon neutrality by 2050.

Allkem supports the recommendations of the Task Force on Climate-related Financial Disclosures ("TCFD") which have been incorporated in the IFRS S2 Climate Related Disclosures Standard. Elements of this Standard are addressed in Allkem's annual disclosures as identified below.

Governance	Strategy	Risk Management	Metrics and Targets The metrics and targets developed and implemented to understand Allkem's performance in relation to climate related risks and opportunities.	
What are the governance processes, controls and procedures Allkem uses to monitor, manage and oversee climate-related risks and opportunities?	How does Allkem's business strategy respond to climate related risks and opportunities?	How does Allkem identify, assess and monitor climate related risks? How are these processes integrated into, and how do they inform Allkem's overall risk management process?		
 Corporate Governance Statement Board Sustainability Committee Charter FY23 Sustainability Report - Climate Change Risk 	 FY23 Annual Report p.29 Net Zero Action Plan Our Purpose Our Impact 	 FY23 Annual Report p.14,36-38. FY23 Sustainability Report - Climate Change Risk 	 <u>Net Zero Action Plan</u> <u>Sustainability</u> <u>Performance Data</u> 	

Climate Change Strategy

Our Purpose

Allkem produces core materials that are fundamental for decarbonisation.

In 2023, the World Economic Forum¹ ranked 'Failure to mitigate climate change' as the most severe long-term risk on a global scale as well as the global risk for which we are the least prepared. To avoid the worst impacts of climate change, global warming must be limited to 1.5°C by achieving net zero global emissions by 2050.

Decarbonisation of road transport is a critical element of the global net zero transition, accounting for approximately 16% of the total reductions required by 2030 under the International Energy Agency ("IEA")'s Net Zero Emissions ("NZE") Scenario².

Batteries remain the most efficient, cost effective and commercially available route to decarbonise road transport, as well as to smooth energy dispatch from intermittent renewable energy sources. Leading auto manufacturers have made significant investments in lithium-ion battery technology and are committed to electrifying their fleets. Chinese EV sales and battery production data continued to show strong growth during the financial year. In the 12 months to June 2023, Chinese EV sales increased 62% year-on-year; and battery production increased 57% year-on-year. Demand outside China also continued to grow; EU and US EV sales for the 12 months to June 2023 rose 20% and 50% respectively.

The demand outlook for lithium is increasing in line with these global commitments. Lithium demand projections from the IEA aligned with a 1.5-degree scenario ("NZE") and announced pledges ("APS") outline the scale of the increase in lithium supply required to achieve this transition³.

Projected Lithium Demand in 2030 Under IEA's Climate Driven Scenarios



Our Impact

Allkem's strong lithium development pipeline and vertically integrated production base positions us well to supply this growing market demand. During FY23, 99% of Allkem's revenue was from our lithium products. Currently, on average, approximately 60% of global demand for lithium is from electric vehicle batteries and this increases to 70% when stationary energy storage systems are also included⁴. Based on our customer profile, we estimate that 95% of our products in FY23 contributed to the energy storage value chain.



On 16 December 2022, we refined our portfolio with the divestment of Borax Argentina S.A. and the acquisition of the Maria Victoria tenement in the Olaroz basin. Following the sale of Borax, 100% of Allkem's assets and business activities are now focused on our lithium growth strategy and aligned with a lower carbon economy.

According to figures reported by the International Energy Agency, it is estimated⁵ that for every one tonne of Lithium Carbonate Equivalent ("LCE") we produce and sell into the electric vehicle ("EV") value chain, we can contribute to a reduction of around 500 tonnes of greenhouse gas emissions. This impact is expected to grow as EVs are increasingly powered by electricity grids transitioning away from fossil fuels towards renewable energy. With future uptake in recycling of EV batteries that have reached their end of life, our lithium products have the potential to continue contributing to even further global emissions reduction beyond their first use.

1 https://www3.weforum.org/docs/WEF_Global_Risks_Report_2023.pdf

https://iea.blob.core.windows.net/assets/6d4dda5b-be1b-4011-9dad-49c56cdf69d1/NetZeroRoadmap_AGlobalPathwaytoKeepthe1.5CGoalinReach-2023Update.pdf p.93
 IEA 2023. https://www.iea.org/data-and-statistics/data-tools/critical-minerals-data-explorer Licence: CC BY 4.0 Market analysis included in our most recent technical reports reference scenarios developed by Wood Mackenzie that use demand projections in line with the demand scenarios of IEA APS.

4 Wood Mackenzie 2023

5 https://iea.blob.core.windows.net/assets/ffd2a83b-8c30-4e9d-980a-52b6d9a86fdc/TheRoleofCriticalMineralsinCleanEnergyTransitions.pdf p.194 BEV fuel economy BEV battery 40 kWh NMC622. Industry estimate of 0.86kg LCE/kWh.

Climate Change Governance



The ASX Listing Rules require the Company to prepare a Corporate Governance Statement each year which discloses the extent to which the Company has followed the recommendations contained in the 4th edition of the ASX Corporate Governance Council's Corporate Governance Principles and Recommendations. Our FY23 <u>Corporate Governance Statement</u> is available on our website.

Reflecting the importance of sustainability to the company, Allkem's Chief Sustainability and External Affairs Officer reports directly to the CEO and also engages regularly with Allkem's Board Sustainability Committee. This Committee met three times during FY23 and assists the Board in the effective discharge of its responsibilities in the areas of sustainability and in particular: safety, health, environment, community, climate change and human rights. The Charter of Allkem's Sustainability Committee, and our other Board Committees are available on the Company website.

Risks, including threats and opportunities identified at the site level are incorporated in operational risk registers. Material risks, including those associated with safety, climate change and human rights are incorporated within Allkem's Risk Framework. Allkem's Board is responsible for overseeing risk and has assigned accountabilities and responsibilities for risk management to the Audit and Risk Management Committee, the Managing Director and executive management. Allkem's Chief Financial Officer is the custodian of the Risk Management process within the organisation. The Group risk framework is reviewed at least annually by the Board Audit and Risk Committee. Key risks captured in this process are summarised and disclosed in <u>Allkem's Annual Report</u>.

Links with remuneration

During FY23, 25% of Allkem's CEO's allocated short term incentive ("STI") performance rights were linked with sustainability focused objectives. These included:

- 5% Finalise Allkem's Net Zero Action Plan
- 10% Maintaining expected carbon emissions intensity across the group

Climate Change Risk Management

Lithium supply and demand forecasts that Allkem incorporates in strategic business planning draw on a range of climate change transition scenarios. These scenarios are informed by global commitments and actions including those designed to limit the rise in global warming temperatures to 1.5°C and avoid the worst effects of climate change. The clear message from these transition scenarios is that the world requires substantially more lithium from both hard rock and brine sources, as well as recycling, to supply the increasing demand from electric vehicles.

We assess our assets for physical climate related risks during planning and approvals processes and continue to manage risks associated with acute and chronic variations in climate through operational phases. Within the last three years, Allkem has completed climate change risk assessments at the facility level for projects in Argentina and Canada. These assessments incorporate scenarios for physical risk based on the Representative Concentration Pathways ("RCP") 8.5 and 4.5. The Transition scenarios are the International Energy Agency ("IEA") scenarios reflecting 'Announced Pledges' and 'Net Zero by 2050'. These scenarios reflect those that inform our ongoing market analysis and internal carbon price values.

Physical Risk Scenarios

RCP 8.5, high-impact scenario

This pathway results in global average temperatures likely to increase beyond 4°C by 2100 relative to pre-industrial temperatures. Under this scenario, significant changes in the frequency and intensity of acute and chronic physical risks occur by mid-century.

RCP 4.5, lower impact, intermediate stabilisation scenario

This represents a moderate mitigation scenario aimed at minimising the costs of achieving significant emission reductions. RCP 4.5 is likely to result in global temperature increases limited to around 3°C.

"Risks associated with large-scale singular events or tipping points, such as ice sheet instability or ecosystem loss from tropical forests, transition to high risk between $1.5^{\circ}C-2.5^{\circ}C$ (medium confidence) and to very high risk between $2.5^{\circ}C-4^{\circ}C$ (low confidence)".⁶

Transition Risk Scenarios

IEA Announced Pledges Scenario ("APS")-(~2°C aligned scenario)

This scenario considers climate commitments made by governments around the world. The IEA Announced Pledges Scenario includes projected carbon pricing of USD \$135/tonne CO_2 in advanced economies by 2030 and USD \$40 tonne CO_2 in emerging markets and developing economies⁷. By 2040 carbon prices are estimated to reach USD \$175. Demand for lithium increases by around 3.5 times compared to 2022 levels by 2030 in this scenario⁸.

IEA Net Zero Emissions by 2050 Scenario ("NZE")-(~1.5°C aligned scenario)

This scenario presents a pathway to effective climate mitigation which sees global CO_2 emissions reach net zero by 2050. The NZE scenario includes projected carbon pricing of USD \$140/tonne CO_2 in advanced economies by 2030 and USD \$90 tonne CO_2 in emerging markets and developing economies. By 2040, advanced economy carbon prices reach USD \$205. This scenario results in an increase in global temperatures limited to 1.5°C above pre-industrial levels by 2100. Demand for lithium increases by around 5.5 times compared to 2022 levels by 2030 in the NZE scenario⁷.

The focus is now on consolidating our approach to climate risk assessment consistently for project planning and operations, supply chain, communities, adaptation and mitigation activities, and investment in R&D, across each site, and with Allkem's Group level Risk Framework.

Allkem uses an internal carbon price for evaluating risk and opportunities of long-term investment decisions, including the development of our Net Zero Action Plan. We continue to review the most appropriate carbon prices to implement in planning decisions across different geographies and timeframes. We consider that (in the absence of an actual carbon price and guidance in the geography where we are operating), the projected values in the IEA APS and NZE Scenarios are appropriate guides. Based on these considerations, internal carbon prices implemented for long term planning decisions during FY23 were based on the following values: Allkem's Group level Risk Framework takes material risks from site level and corporate risk registers into consideration and is reviewed at least annually by the Board Audit and Risk Committee. For risks contained in the FY23 Group level Risk Framework, we have carried out further assessment to incorporate potential impacts in the medium to longer term under various climate change scenarios. The high-level outcomes of this exercise, bringing together the findings of previous standalone climate change risk assessments, are summarised in the table overleaf. This process will form the foundation for further integrated consideration of temporal changes in likelihood and consequence levels as a result of climate change across our growing business.

- US\$50/tCO₂-e (short term)
- US\$100/tCO₂-e (up to 2030)
- US\$140/tCO₂-e (2030-2040)
- US\$175/ tCO₂-e (2040-2050)

⁶ IPCC 6th Assessment Synthesis Report (March 2023) https://www.ipcc.ch/report/ar6/syr/downloads/report/ IPCC AR6 SYR LongerReport.pdf p. 77.

⁷ IEA 2022a Global Energy and Climate Model Documentation, <u>https://iea.blob.core.windows.net/assets/</u> <u>ff3a195d-762d-4284-8bb5-bd062d260cc5/GlobalEnergyandClimateModelDocumentation2023.pdf</u> p.20, License: CC BY 4.0

⁸ IEA 2023. https://www.iea.org/data-and-statistics/data-tools/critical-minerals-data-explorer Licence: CC BY 4.0

Physical Climate Risks

Risk	Description	
Impact on surface and subsurface water bodies and brine reserves (Chronic physical risk)	 Risk that climate change, combined with inappropriate resource use impacts water sources that supply our sites. This could also present an opportunity when compared with other lithium producers as Allkem sites are located in areas of lower water risk (including under the RCP8.5 scenario up to 2030—based on WRI Water Risk Atlas⁹). 	
	 Risk that climate change impacts brine reserves and/or evaporation ponds. Risk for brine reserves could also increase due to more companies operating in the same basins with a low level of coordination in terms of potential environmental impact. Increased temperatures and/or wind could also increase efficiency of brine evaporation ponds. 	Risk/Op
Natural Disaster—Major Environmental events (Acute physical risk)	 Climate change can lead to more frequent and severe extreme natural disaster weather events, such as storms, floods and wildfires. These events can disrupt mining operations and projects, damage infrastructure, and disrupt the transportation of key raw materials, finished products, and project inputs. Can also impact the safety of our communities and workforce. 	Risk

Transition Climate Change Risk

Risk	Description				
Lithium product price risk and market changes in the lithium industry	 The demand outlook for lithium is increasing in line with global commitments to migrate to lower emissions transport and energy solutions in response to climate change. (Increases by around 5 times compared to 2021 levels by 2030 in Announced Pledges Scenarios. IEA's NZE Scenario projects demand increasing by around 8 times in 2030 compared to 2021 levels.) Allkem's strong lithium development pipeline and vertically integrated production base positions us well to supply this growing market. 	Opportunity			
Net Zero Transition (including ESG regulations such as carbon price/tax)	 Reaching our Net Zero Emissions goal in operational scope 1 and 2 emissions by 2035 will demand increasing efforts and technology innovation but will also reduce exposure to carbon prices implemented in different regions. Maintaining/increasing recognition as a low emissions lithium supplier will also present an opportunity with customers in the EV value chain. 	Risk/Opportunity			

9 https://www.wri.org/applications/aqueduct/water-risk-atlas/

Net Zero Action Plan

Allkem has a Board approved target of Net Zero for operational scope 1 and 2 GHG emissions by 2035. Our original Net Zero commitment was made in 2021 with respect to the Olaroz Stage 1 and Stage 2 developments for Orocobre. Following completion of the merger with Galaxy Resources Ltd in August 2021 we expanded the scope of the commitment to include all of Allkem's assets.

Based on this expanded commitment, during FY23 we developed our first action plan towards achieving this goal. Projected GHG baseline emissions (scope 1 and 2) were estimated for the period from 2022-2045¹⁰. This baseline included projected emissions from existing operations and projects as of the beginning of FY23.

Due to Allkem's planned growth in lithium production, baseline absolute emissions estimates continue to increase in the short to medium term as new and expansion projects come online. With no GHG mitigation measures in place, baseline emissions were estimated to reach a steady state of approximately 500kt/year ("total annual baseline GHG emissions").

Main operational emissions sources include fossil fuel use for onsite machinery, electricity, and process heat generation. Emissions are also associated with reagent use at our lithium carbonate plants. To provide further context, the main sources of Allkem's scope 1 and 2 operational emissions during FY23 are summarised below:

44%



*e.g. haul trucks and mine equipment

Allkem FY23 Lithium Production Operational GHG Emissions Sources

10 Note that these estimates include Olaroz Stage 1, 2 and 3, Sal de Vida 1 and 2, and James Bay mine. Estimates were made prior to the updated technical studies and do not include the Mt Cattlin mine life extension announcement.

Mt Cattlin Operations

Olaroz

A significant outcome of our net zero action plan project is the development of a Net Zero Analytical Planning Tool. As we increase our lithium production, we will continue to use this tool to evaluate the viability of proposed emissions reduction projects.

We have identified a series of preliminary GHG mitigation opportunities designed to reduce initial projected baseline emissions. These opportunities have a total direct emissions mitigation potential of approximately 60% when fully implemented. These projects have focused on proven technology and are primarily based on transitioning away from fossil fuels for electricity generation on site, as well as increasing the efficiency of process heat generation.

Each of the mitigation and offset opportunities currently included in our Net Zero Plan, and the estimated contribution towards reducing projected annual baseline emission are outlined below.

Net Zero Summary



Mitigation Opportunities

Opportunity 1

Olaroz Lithium Facility (Sales de Jujuy) Combined Heat and Power ("CHP")

- Full commissioning of the heat recovery system at Olaroz, utilising heat produced by the generation of electricity for process heat requirements. This will reduce the amount of natural gas used per tonne of lithium carbonate produced.
- · This project is now in the commissioning stage.
- The CHP project is estimated to contribute to potential annual savings of around US\$2.5 million (pre-tax), with capital expenditure estimated at around US\$13 million. This opportunity has the potential to reduce total annual baseline GHG emissions by 7-10%, from FY24.

Opportunity 2

Sal de Vida Power Purchase Agreement ("PPA")

Hybrid Generation Plant—Solar Photovoltaic ("PV") and Combined Heat and Power ("CHP")

- Incorporates increased electricity generation from solar PV.
- Combined heat and power diesel plant to increase efficiency of required heat generation and further reduce process emissions.
- During FY23, this project was in the detailed engineering stage. Further investigations are being conducted to determine the feasibility of battery storage systems at this elevation.¹¹
- Initial estimates are that when fully implemented, this opportunity could reduce total group level annual baseline GHG emissions by around 17%. Lower energy costs associated with PV generation are also estimated to contribute to annual savings of approximately US\$12 million.

Opportunity 3

Sal de Vida Natural Gas Supply

- Involves building a 39 km Natural Gas Pipeline to replace diesel used at the Sal de Vida CHP plant. Natural gas is a more efficient, cheaper and lower emission fuel than diesel.
- This opportunity is in the engineering stage. Further studies are underway to confirm value, price and schedule.
- Early estimates are that this opportunity could reduce annual total baseline emissions by a further 4%. Subject to detailed engineering, the capital expenditure for the construction of the Gas Pipeline is estimated to be around US\$ 31 million. Annual savings in fuel costs are estimated to be approximately US\$10 million.

Additional Electrification Opportunities

Olaroz Lithium Facility (Sales de Jujuy)

- Further opportunities to increase renewable electricity use at the Olaroz Lithium Facility have also been identified including:
 - Options for connecting the Olaroz Lithium Facility to the electricity grid. This would enable the purchase of renewable electricity from existing suppliers
 - Installation of electric boilers

These opportunities are in the desktop study phase. Early estimates for these projects show potential for further GHG emissions reductions of around 31% of the total annual baseline GHG emissions.

11 The initial contract for this power purchase agreement was signed in October 2023, prior to the publication of this report.

Offset Opportunities

We have also identified potential for generating offsets that exceed the remaining GHG emissions through developing an onsite photovoltaic plant. This would remove the need to purchase electricity from the grid and also create a potential surplus to sell to other users of the electricity grid.

Next steps

To reach ambitious global net zero goals, new technology will be required to address difficult to abate emissions. We continue to research and monitor the development of evolving solutions. These include opportunities for further electrification of mine site machinery to utilise lower emissions electricity generation. Opportunities to increase the efficiency of the capture and reuse of process reagents and associated emissions are also being investigated. Ongoing projected emissions estimates will continue to be refined throughout project planning and approvals phases, and as new technology becomes available. Allkem's new projects and expansion projects are being designed considering the group level net zero target.

Scope 3 emissions

To align our net zero target with the Science Based Target Initiative, we also need to address our material scope 3 emissions. We report our scope 3 emissions for each operation and continue to expand the sources included in our calculations. Through this investigation we have identified areas where we can focus efforts to encourage further emissions reduction within our value chain. The graphs below compare the operational scope 1, 2 and 3 emissions from our hard rock and brine-based lithium operations. This year, each operation produced approximately 16kt of LCE.



Spodumene to Lithium Hydroxide-Mt Cattlin Value Chain GHG Emissions (tCO2e)



Brine to Lithium Carbonate-Olaroz Value Chain GHG Emissions (tCO2e)

Metrics and Targets

The following short term, intermediate and long-term emissions targets have been designed, considering Allkem's projected growth and net zero by 2035 target:

KPIs	FY23	FY23	FY24	FY28	FY35
Olaroz Lithium Facility	Value	Target	Target	Target	Target
Operational Emissions Intensity Scope 1+2 (tCO ₂ -e/t)	2.8	3.25	3.25	<3.0	0 ¹²
Renewable energy (% of process electricity and heat)	0	0	0	50	100
Mt Cattlin	Value	Target	Target	Target	Target
Emissions Intensity Scope 1+2 (tCO ₂ -e/t LCE)	3.35	2.36	3.6	3.6	NA
Sal de Vida	Value	Target	Target	Target	Target
Emissions intensity Scope 1+2 (tCO ₂ -e/t)	NA	NA	NA	1.9 ¹³	0 ¹²
Renewable energy (% of process electricity and heat)	0	0	0	40 ¹³	70
James Bay	Value	Target	Target	Target	Target
Emissions intensity (tCO ₂ -e/tLCE)	NA	NA	NA	0.875	0 ¹²

Further information relating to our scope 1, 2 and 3 emissions and water use at the facility level are reported in our annual Sustainability Reports and Performance data available on our <u>website</u>.

12 Includes offsets13 Target linked to IFC funding

Forward Looking Statements

Forward-looking statements are based on current expectations and beliefs and, by their nature, are subject to a number of known and unknown risks and uncertainties that could cause the actual results, performances and achievements to differ materially from any expected future results, performances or achievements expressed or implied by such forward-looking statements, including but not limited to, the risk of further changes in government regulations, policies or legislation, risks that further funding may be required, but are unavailable, for the ongoing development of the Company's projects; fluctuations or decreases in commodity prices; uncertainty in the estimation, economic viability, recoverability and processing of mineral resources; risks associated with development of the Company Projects; unexpected capital or operating cost increases; uncertainty of meeting anticipated program milestones at the Company's Projects; and risks associated with general economic conditions. Subject to any continuing obligation under applicable law or relevant listing rules of the ASX, the Company disclaims any obligation or undertaking to disseminate any updates or revisions to any forward-looking statements in this Release to reflect any change in expectations in relation to any forward-looking statements or any change in events, conditions or circumstances on which any such statements are based. Nothing in this Release shall under any circumstances (including by reason of this Release remaining available and not being superseded or replaced by any other Release or publication with respect to the subject matter of these, or explaced any since the date of this Release.

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