Emerging Markets Case Study: Resource Efficiency in the Automobile Sector

A Comparative Analysis of Kia Corp Corporation (000270.KS) (Kia Corp) and Guangzhou Automobile Group (2238.HK) (GAC GROUP).

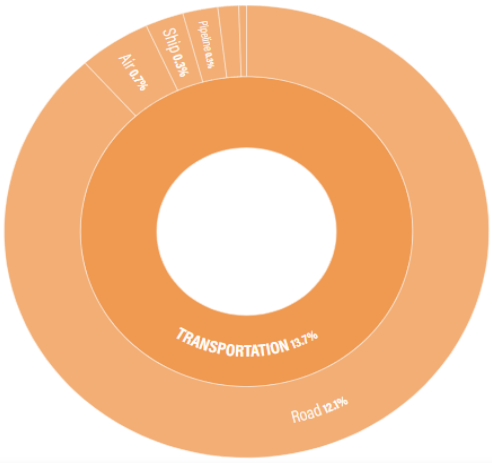
Executive Summary

- Manufacturing remains the dominant source of emissions for both Electric Vehicles (EV) and Internal Combustion Engine Vehicle (ICEV) producers in the automobile sector
- Efficiency in carbon, water, and waste reduction drives financial performance and environmental resilience
- Kia Corp demonstrates industry-leading resource efficiency across carbon, water, and waste metrics
- GAC GROUP is making strides but remains significantly less efficient compared to Kia Corp
- Both absolute and relative reductions in resource use are essential for long-term sustainability

Industry Context: Road to Decarbonisation

Transportation's Environmental Impact

The transportation industry contributes 13.7% to global greenhouse gas (GHG) emissions, with road transport alone accounting for 12.1%. EV adoption is growing swiftly, driven by shifting consumer preferences and government decarbonisation targets. EVs offer lower lifecycle carbon emissions compared to ICEVs, making them central to future sustainability efforts.



Source: World Resources Institute, 2021

The Role of Manufacturing

Regardless of vehicle type, the manufacturing phase is the largest contributor to lifecycle emissions for listed automobile companies. Efficiency in resource usage - especially carbon, water, and waste - is critical for both environmental and financial performance. Osmosis research confirms that resource-efficient firms enjoy cost savings, improved resilience, and better regulatory alignment.

Carbon Intensity: A Tale of Two Strategies

Kia Corp: Leading with Low-Carbon Innovation

Kia Corp boasts one of the lowest carbon intensities in the sector and the highest profit per vehicle (11.8% margin in 2024), driven by its hybrid vehicle success. The company's low-carbon strategy includes:

- Tailored, region-specific manufacturing strategies
- Integration of automation and smart factory technologies
- Localised supply chains to cut transport-related emissions
- On-site renewable energy via solar and Power Purchase Agreements (PPAs)
- Preparations for Science Based Targets Initiative (SBTi) compliance

GAC GROUP: Progress, But Lagging Behind

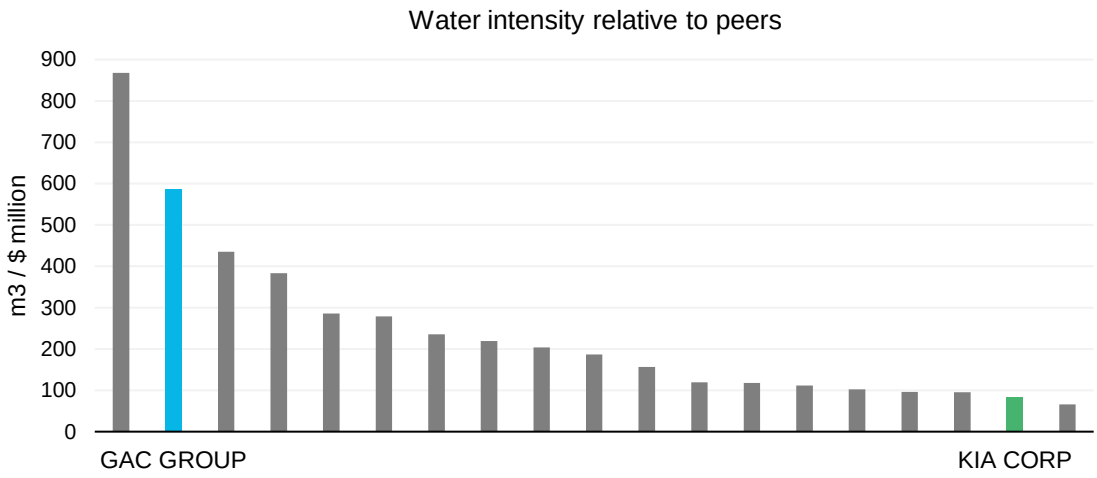
GAC GROUP is 1.7 times more carbon intensive than Kia Corp. Despite building its first zero-carbon plant with smart microgrids and photovoltaics, the company:

- Relies heavily on fossil fuels at production sites
- Has limited deployment of efficient systems across all facilities

Key Insight

Kia Corp generates nearly 4x more revenue per tonne of CO_2 than GAC GROUP, showcasing the financial and environmental benefits of aggressive early action.

Water Intensity: Efficiency Beyond the Surface



Source: Osmosis IM, 31 December 2024. Displays all companies in the Osmosis Automobiles sector[1].

[1] Companies in the Osmosis Autombile Sector are derived from those automobile companies in the MSCI Developed Index that Osmosis deems to have comparable business models and that report sufficient environmental data to assess their Resource Efficiency.

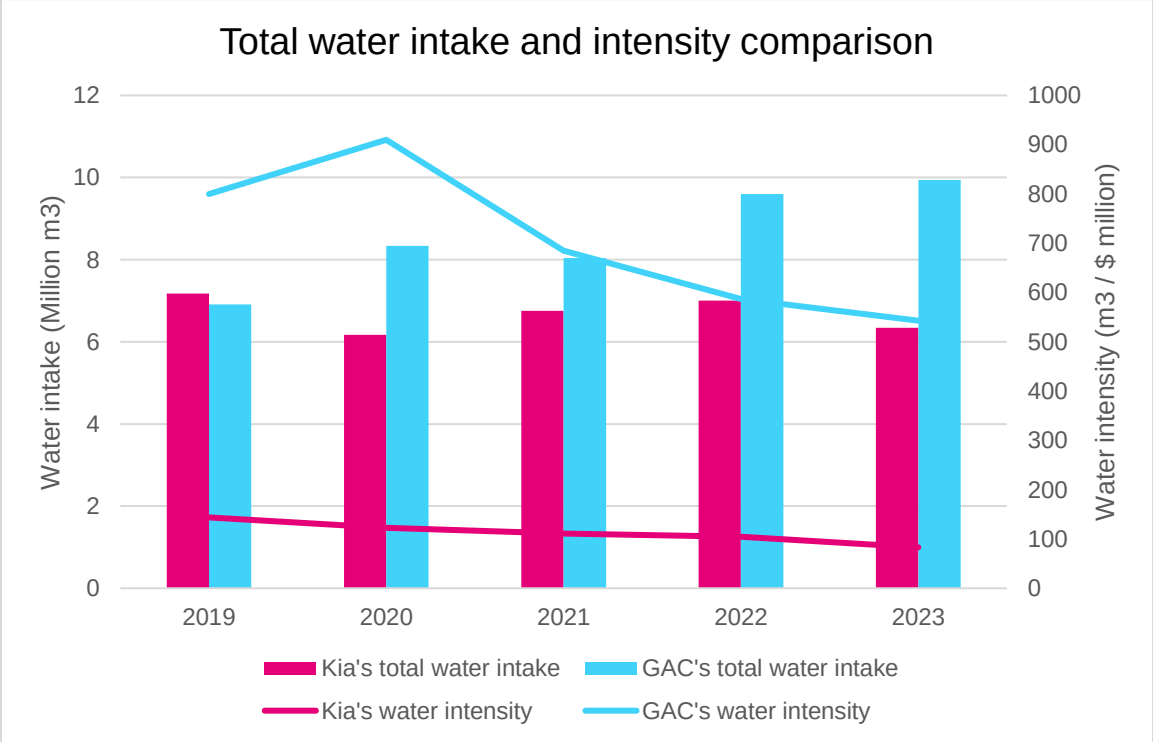
Kia Corp: Pioneering Closed-Loop Water Use

Kia Corp's water efficiency strategy includes:

- Upgrades to industrial water infrastructure
- 95% water use reduction in car washes via rainwater harvesting and wastewater recycling
- Reverse osmosis systems for maximum reuse

GAC GROUP: Monitoring Without Material Progress

GAC GROUP uses real-time wastewater monitoring and third-party oversight but remains 7x more water intensive than Kia Corp. Although subsidiaries like GAC GROUP Honda have water-saving targets, total raw water extraction continues to rise.



Source: Osmosis IM, 01/01/2019 to 31/12/2023

Key Insight

While both companies reduce water intensity, absolute water use must also decline. Kia Corp leads in both metrics.

Waste Intensity: Recycling and Raw Material Strategy

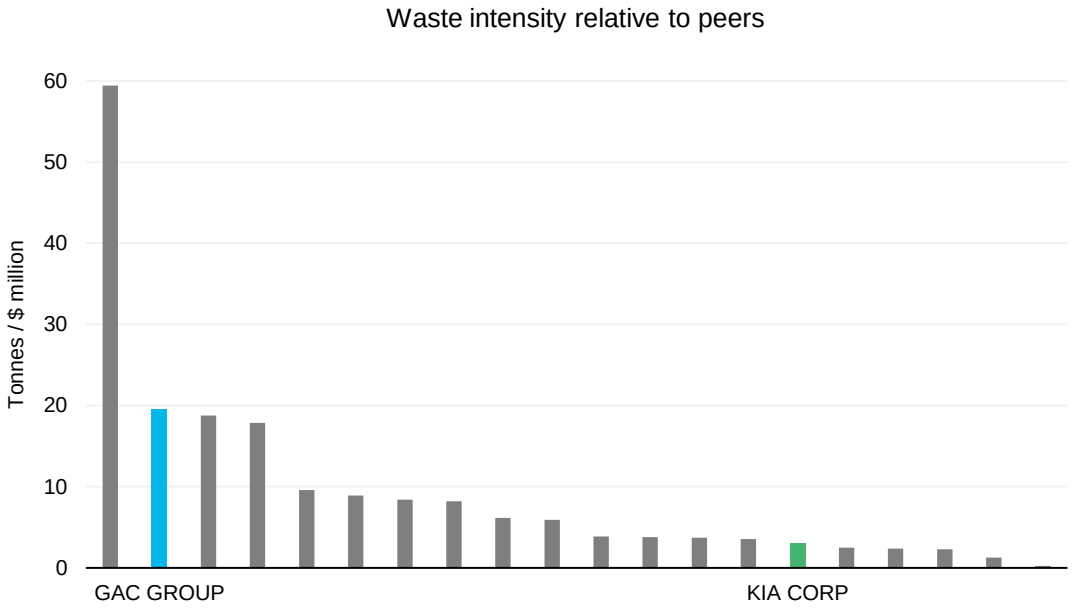
Kia Corp: Sustained Recycling and Circular Materials

Since 2007, Kia Corp has maintained a >90% recycling rate. Its additional initiatives include:

- Waste reduction Key Performance Indicators (KPIs) and performance tracking
- Replacing leather with Biobased Polyurethane (BIO PU) and biomaterials in EVs
- Partnerships (e.g., The Ocean Cleanup) to use recycled ocean plastics
- Target of 20% recycled plastic content by 2030

GAC GROUP: Room for Improvement

Despite developing a traceable waste management system, GAC GROUP is still 6.4x more waste intensive than Kia Corp. Its waste output continues to grow, despite relative improvements.



Source: Osmosis IM, 31 December 2024. Displays all companies in the Osmosis Automobiles sector[2].

Key Insight

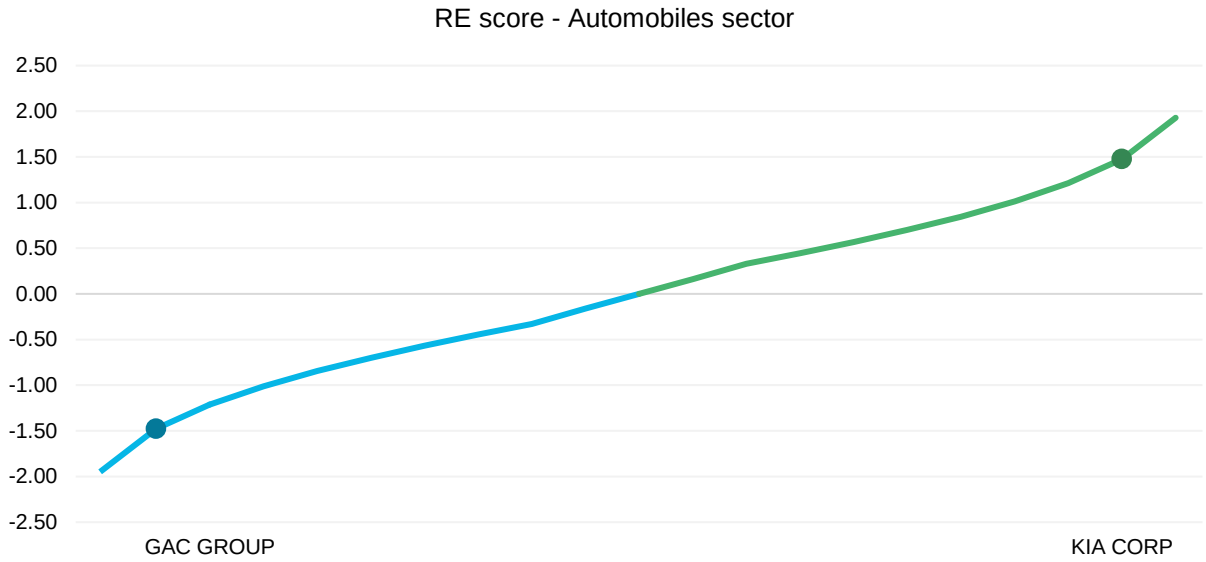
Kia Corp's integrated strategy keeps both waste intensity and absolute waste generation in check, while GAC GROUP must accelerate its progress.

---

[2] [2] Companies in the Osmosis Autombile Sector are derived from those automobile companies in the MSCI Developed Index that Osmosis deems to have comparable business models and that report sufficient environmental data to assess their Resource Efficiency

Overall Resource Efficiency Score

Kia Corp consistently ranks among the top-performing automobile companies for carbon, water, and waste efficiency. GAC GROUP ranks among the worst. At Osmosis, we emphasise measurable action over aspirational goals - hence Kia Corp's superior Resource Efficiency (RE) Score.



Source: Osmosis IM, 31 December 2024. Displays all companies in the Osmosis Automobiles sector[3]

Conclusion: Action Over Aspiration

This comparison highlights that:

- Measurable environmental action enhances profitability and resilience.
- Efficiency metrics offer a more truthful picture than aspirational targets.
- Absolute reductions are as vital as efficiency improvements.

Across carbon, water, and waste metrics, Kia Corp has consistently emerged as one of the most efficient companies in the automobile sector, whereas GAC GROUP ranks among the lowest. Kia Corp demonstrates a markedly higher level of resource efficiency in vehicle production, while GAC GROUP continues to lag behind. Although both automakers have undertaken commendable sustainability initiatives, our approach prioritises measurable outcomes over aspirational goals. The Resource Efficiency score is grounded in objective, comparable, and quantitative environmental data. As a result, Kia Corp earns one of the highest resource efficiency scores in the sector, while GAC GROUP receives one of the lowest.

[3] Companies in the Osmosis Autombile Sector are derived from those automobile companies in the MSCI Developed Index that Osmosis deems to have comparable business models and that report sufficient environmental data to assess their Resource Efficiency

Important Information

This document was prepared and issued by Osmosis Investment Research Solutions Limited (“OIRS”). OIRS is an affiliate of Osmosis Investment Management US LLC (regulated in the US by the SEC) and Osmosis Investment Management UK Limited (regulated in the UK by the FCA). OIRS and these affiliated companies are wholly owned by Osmosis (Holdings) Limited (“Osmosis”), a UK-based financial services group. Osmosis has been operating its Model of Resource Efficiency since 2011.

The investment examples set forth in this presentation should not be considered a recommendation to buy or sell any specific securities. There can be no assurance that such investments will remain in the strategy or have ever been held in the strategy. The case studies have been selected to be included in this presentation based upon an objective non-performance basis because we believe these are indicative of our strategy and investment process. Nothing herein shall be deemed to limit the investment strategies or investment opportunities to be pursued by Osmosis.

The information is intended only for the use of eligible and qualified clients and is not intended for retail clients. The information does not constitute an offer or solicitation for the purchase or sale of any security, commodity or other investment product or investment agreement, or any other contract, agreement, or structure whatsoever. Recipients are responsible for making your own independent appraisal of and investigations into the products referred and not rely on any information as constituting investment advice. Investments like these are not suitable for most investors as they are speculative and involve a high degree risk, including risk of loss of capital. There is no assurance that any implied or stated objectives will be met. Osmosis has based the information obtained from sources it believes to be reliable, but which have not been independently verified. Osmosis is under no obligation and gives no undertaking to keep the information up to date. No representation or warranty, express or implied, is or will be made, and no responsibility or liability is or will be accepted by Osmosis, or by any of its officers, employees, or agents, in relation to the accuracy or completeness of the information. No current or prospective client should assume that future performance will be profitable the performance of a specific client's account may vary substantially due to variances in fees, differing client investment objectives and/or risk tolerance and market fluctuations.