Research Brief

BYD, Geely, Great Wall Motor:

Which EV giant leads in green and low-carbon performance?

Institute of Public & Environmental Affairs

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Recently, the “war of words” between BYD, Geely, and Great Wall Motor (GWM) has garnered considerable attention.

Setting aside the technical debates online, IPE uses publicly available data to analyse which of these three automakers, all embracing renewable energy, is taking the lead in low-carbon and environmental performance.

I. Low-carbon Performance

1. Use of Renewable Electricity: Geely is significantly ahead, BYD shows the fastest growth

In the emission reduction roadmaps disclosed by BYD, Geely, and GWM, the use of renewable energy is an essential part of their efforts to reduce carbon emissions from operation, as detailed in Table 1.

Table 1: Emission Reduction Roadmaps Disclosed by BYD, Geely, and GWM

Brand	Carbon Emission Reduction Roadmaps and Measures
BYD	To achieve a 50% reduction in the carbon intensity of the Group’s own operations by 2030: 1. Energy-saving technology improvements: Set energy-saving targets, optimize production flows, improve equipment energy efficiency, recycle and reuse energy, practice intelligent production and management, enhance technological innovation **2. Optimize electric power structure: Develop photovoltaic projects, switch to green electricity, purchase green certificates, and procure CERs**
Geely	Carbon emissions of vehicles in manufacturing are mainly derived from the use of natural gas and gasoline and other energy during the production process of vehicles as well as energy consumption (including purchased electricity and thermal energy) in the operation of plants. **We promote carbon reduction in manufacturing through energy conservation, consumption reduction and clean energy substitution.**
GWM	**The Company has continuously increased the installed capacity of distributed PVs and actively participated in green power trading in the electricity market to increase the proportion of clean energy in the production process of its products and reduce carbon emissions.**

(Data sources: BYD Co. Ltd 2024 Sustainability Report[1]; Geely Automobile Holdings Limited 2024 Environmental, Social, and Governance Report[2]; Great Wall Motor Co. Ltd 2024 Corporate Social Responsibility Report[3])

Data disclosed by the three companies for 2024 (Table 2) shows that Geely's renewable electricity accounts for 42% of its total power consumption. In comparison, GWM's renewable electricity percentage is 18%, and BYD's is only 17.3%. In this critical indicator, Geely is far ahead.

Table 2: Renewable Electricity Use and Proportion in 2024 for BYD, Geely, and GWM

Brand	Green Power Purchases (MWh)	Green Certificate Purchases (MWh)	Self-built PV (MWh)	Renewable Electricity Consumption (MWh)	Total Power Consumption (MWh)	Renewable Electricity Percentage (%)
BYD	467,696.88	2,237,986.00	55,199.10	2,760,881.98	13,196,208.48	**17.3%**
Geely	/	/	/	703,782.22	1,682,875.20[4]	**42%[5]**
GWM	/	/	/	246,221.47	1,338,457.25	**18%[6]**

(Data sources: BYD Co. Ltd 2024 Sustainability Report; Geely Automobile Holdings Limited 2024 Environmental, Social, and Governance Report; Great Wall Motor Co. Ltd 2024 Corporate Social Responsibility Report)

While BYD's proportion is the lowest, an analysis of data from 2022 to 2024 (Table 3) shows that BYD's use of renewable electricity has been growing significantly, with an average annual growth rate of over 330%.

Geely's renewable electricity usage in 2023 increased by 118% compared to 2022, and it grew by 31% in 2024 compared to 2023.

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[1] https://www1.hkexnews.hk/listedco/listconews/sehk/2025/0324/2025032401244.pdf

[2] https://global.geely.com/-/media/project/web-portal/2025/esg-report/esg-report-2024.pdf

[3] https://www1.hkexnews.hk/listedco/listconews/sehk/2025/0328/2025032805034.pdf

[4] Calculated by IPE based on the sum of renewable and purchased non-renewable electricity disclosed in *Geely Automobile Holdings Limited 2024 Environmental, Social, and Governance Report*

[5] Renewable electricity percentage for Geely calculated by IPE

[6] Renewable electricity percentage for GWM calculated by IPE

Compared to BYD and Geely's rapid growth, GWM's renewable electricity usage in 2024 grew by 24% from 2023, which is the lowest among the three automakers. Because GWM did not disclose its renewable energy usage for 2022, growth between 2022 and 2023 cannot be assessed.

Table 3: Renewable Electricity Usage for BYD, Geely, and GWM from 2022 to 2024

Brand	2022 (MWh)	2023 (MWh)	2024 (MWh)	Growth from 2022 to 2023	Growth from 2023 to 2024
BYD	146,660.40	550,624.90	2,760,881.98	275%	**401%**
Geely	245,892.05	536,948.21	703,782.22	118%	**31%**
GWM	/[7]	199,011.60	246,221.47	/	**24%**

(Data sources: BYD Co. Ltd 2024 Sustainability Report; Geely Automobile Holdings Limited 2024 Environmental, Social, and Governance Report; Great Wall Motor Co. Ltd 2023[8], 2024 Corporate Social Responsibility Report)

2. Carbon Emissions and Energy Consumption: All three companies conduct carbon accounting/disclosure, Geely discloses product carbon footprint

BYD, Geely, and GWM all account for and disclose energy consumption and Scope 1 & 2 greenhouse gas emissions data (see Table 4).

Table 4: BYD, Geely, and GWM Scope 1 & 2 Carbon Emissions and Energy Consumption in 2024

Brand	Scope 1&2 (tCO_2)	Scope 1&2 Carbon Intensity (tCO_2/10,000 RMB revenue)	Total Energy Consumption (10,000 tons of standard coal)	Energy Intensity (tons of standard coal/10,000 RMB revenue)
BYD	10,101,826.20	0.13	273.43	0.0352

[7] GWM did not disclose total renewable energy for 2022

[8] https://file.finance.sina.com.cn/211.154.219.97:9494/MRGG/CNSESH_STOCK/2024/2024-3/2024-03-29/9914483.PDF

Geely	942,768.00[9]	0.04[10]	28.33	0.01[11]
GWM	1,149,365.35	0.06[12]	29.83	0.01[13]

(Data sources: BYD Co. Ltd 2024 Annual Report[14]; Geely Automobile Holdings Limited 2024 Annual Report[15]; Great Wall Motor Co. Ltd 2024 Annual Report[16]; BYD Co. Ltd 2024 Sustainability Report; Geely Automobile Holdings Limited 2024 Environmental, Social, and Governance Report; Great Wall Motor Co. Ltd 2024 Corporate Social Responsibility Report)

It should be noted that BYD's main business, as disclosed in the annual report, includes both the automotive business, primarily focusing on new energy vehicles, and mobile phone components and assembly, secondary rechargeable batteries, and photovoltaic businesses. Among these, secondary rechargeable batteries include lithium-ion batteries used in various consumer electronics and new intelligent products, as well as lithium iron phosphate batteries used in new energy vehicles.

In communications with IPE, BYD stated: The total Scope 1&2 emissions include all business sectors; "due to our involvement in multiple business segments, we have not separately accounted for the greenhouse gas emissions from the automotive business".

Although BYD has not accounted for and disclosed carbon emissions from the automotive business, it disclosed in its sustainability report that in 2024 that it has accounted for the carbon footprint of 9 models of new energy vehicles, and 4 models of batteries have received carbon footprint verification statements. However, IPE was unable to find any public data.

Geely disclosed in its ESG report that it has encouraged 590 suppliers to use the carbon management system "Geely Carbon Cloud" to calculate cradle-to-gate

[9] BYD and Great Wall Motor did not specify their Scope 2 accounting methods. Based on energy data, IPE estimates that both use a location-based method and thus uses Geely's location-based Scope 2 emissions for comparison. Scope 1 & 2 emissions are calculated by summing greenhouse gas emissions (Scope 1) and location-based emissions (Scope 2) as disclosed in *Geely Automobile Holdings Limited's 2024 Environmental, Social and Governance Report*.

[10] Calculated based on Great Wall Motor's 2024 total energy consumption and total revenue

[11] Calculated based on Geely Automobile's 2024 total energy consumption and total revenue

[12] Calculated by IPE using Great Wall Motor's 2024 Scope 1 & 2 emissions and total revenue

[13] Calculated by IPE using Geely Automobile's 2024 Scope 1 & 2 emissions and total revenue

[14] https://www1.hkexnews.hk/listedco/listconews/sehk/2025/0324/2025032401238.pdf

[15] https://www.hkexnews.hk/listedco/listconews/sehk/2025/0428/2025042800039.pdf

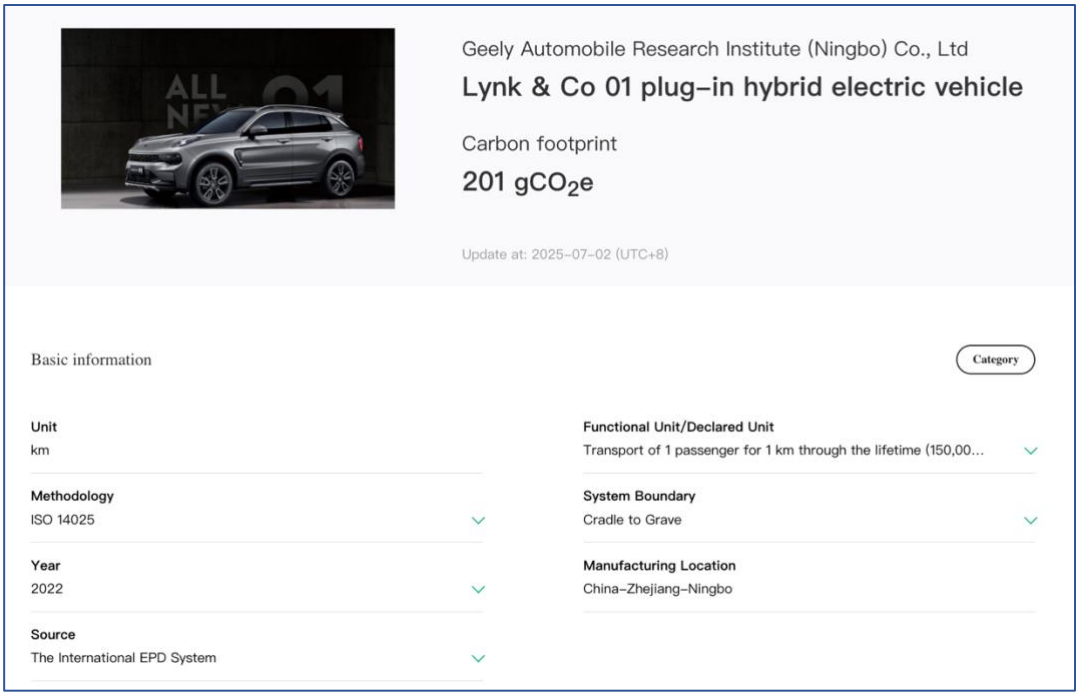
[16] https://res.gwm.com.cn/2025/03/30/1847203_131_e101.pdf

product carbon footprints, completing the carbon footprint calculations for 4,380 parts.

In 2023, Geely disclosed the carbon footprint data for the plug-in hybrid vehicle "Lynk & Co 01" and obtained the Environmental Product Declaration (EPD) certification (see Figure 1). According to the EPD report, the carbon footprint per kilometer driven over the vehicle's lifecycle (based on 150,000 km of driving) is 201gCO_2e, with upstream material production emissions at 91.3gCO_2e, accounting for 45% of the total lifecycle footprint.

The carbon footprint of Geely's "Lynk & Co 01" is significantly lower than the average carbon footprint of compact plug-in hybrid SUVs shown on the China Automotive Industry Chain Carbon Footprint Platform (CPP), which is 238gCO_2e per kilometer driven. This could be due to Geely using on-site measured data from suppliers when calculating the carbon footprint of the "Lynk & Co 01". However, the EPD report only disclosed the use of recycled PET material ECONYL® made from post-consumer waste such as fishing nets for the vehicle seats, but did not disclose the use of recycled steel or aluminum. The lifecycle data was also not broken down into emissions from steel, aluminum, and battery materials. Therefore, we cannot understand the specific reasons why the carbon footprint of Geely's "Lynk & Co 01" is 15% lower than that of comparable models.

GWM did not disclose whether it has conducted carbon footprint accounting for its automotive products.



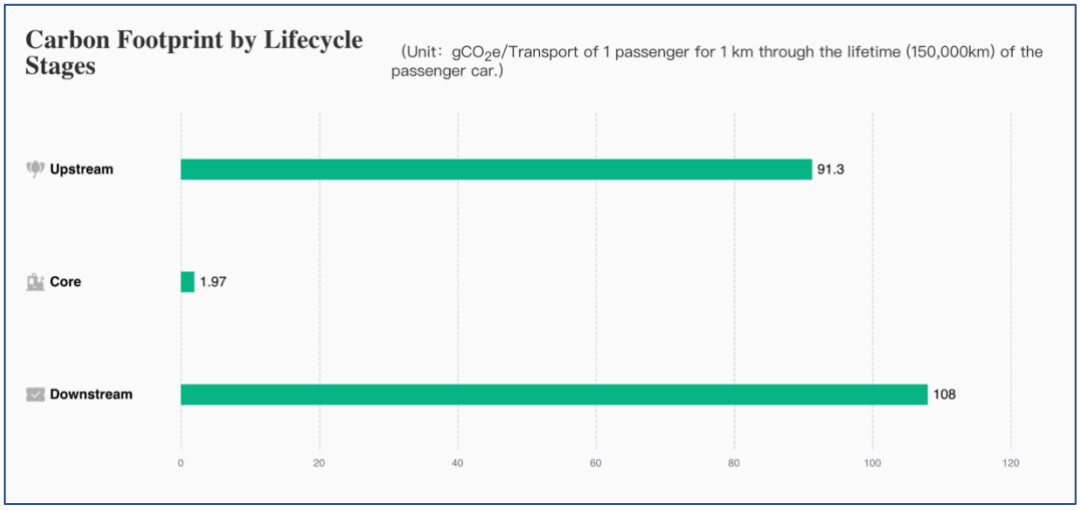


Figure 1: "Lynk & Co 01" Product Carbon Footprint[17]

3. Target Setting and Progress: Different target years for carbon reduction, with Geely leading in progress

BYD, Geely, and GWM all set their carbon neutrality target year as 2045. All three companies disclosed their short-term emission reduction targets and the progress made toward those targets as of 2024 (see Table 5).

Table 5: Scope 1 & 2 Carbon Targets Disclosed by BYD, Geely, and GWM

Brand	Scope 1&2 Emission Reduction Targets					Carbon Neutrality Target
	Benchmark Year	Target Year	Reduction Percentage	Original Target Text	Target Progress	Target Year
BYD	2023	2030	50%	50% reduction in the carbon intensity of the Group's own operations by 2030 (compared with 2023)	**37%**[18]	2045

[17]https://wwwen.ipe.org.cn/LifeCycleAssessments/detaliNew.aspx?id=6AD25216CDD5E3F85C7CC43A7E4D5731EDFDDB0BB7E5344F8DCF5F43D1247017&parentid=0&typeid=undefined&datatype=1

[18] Calculated by IPE based on the GHG emission intensity (Scope 1 + Scope 2) disclosed in *BYD Company Limited's 2024 Sustainability Report*

Geely	2020	2025	50%	50% carbon reduction of vehicle manufacturing in 2025[19] (compared to baseline 2020)	**2023 decreased 54% 2024 decreased 56%[20]**	2045
	2020	2025	20%	20% reduction in energy consumption intensity of vehicle plants in 2025 (compared to baseline 2020)	**2024 decreased 17.2% 2023 decreased 14%**	
GWM	2020	2025	18%	18% reduction in vehicle manufacturing emissions by 2025[21] (compared to 2020)	**Scope 1&2 GHG emission intensity of vehicle manufacturing sites decreased by 17.16% compared to 2020**	2045

(Data sources: BYD Co. Ltd 2024 Sustainability Report; Geely Automobile Holdings Limited 2024 Environmental, Social, and Governance Report; Great Wall Motor Co. Ltd 2024 Corporate Social Responsibility Report)

Comparing the social responsibility and ESG reports disclosed by the companies, IPE judges that both GWM and Geely have set intensity-based emission reduction targets for vehicle manufacturing. GWM has a target of 18% by 2025, while Geely set a 50% reduction target for the same year.

BYD did not set a target for 2025 but proposed a goal to reduce its operational carbon intensity by 50% by 2030, with progress of 37% achieved by 2024.

4. Supply Chain Climate Action: Geely's Management System Leads, But BYD and GWM Excel in Scrap Metal Recycling

The *2024 Supply Chain Climate Action CATI Index Annual Evaluation Report*[22] released by IPE points out that supply chains are the main source of greenhouse gas emissions in most industries, especially the production of upstream raw materials.

[19] Geely did not specify whether the target is for intensity-based emission reduction

[20] Geely did not specify whether the target refers to emission intensity, but IPE determined from the chart disclosed in *Geely Automobile Holdings Limited's 2024 ESG Report* that it refers to carbon reduction intensity in vehicle manufacturing

[21] Great Wall Motor did not specify whether the target is for intensity-based emission reduction

[22] https://wwwen.ipe.org.cn/reports/report_22225.html

Supply chain carbon disclosure and climate risk management are increasingly becoming a focal point for both Chinese and international stakeholders.

Geely's disclosed greenhouse gas emissions data from 2022 to 2024 (see Table 6) shows that emissions from the supply chain (Scope 3 Category 1: purchased goods and services) have increased year on year, with their proportion in total Scope 1, 2, 3 emissions rising from 20.69% in 2022 to 23.17% in 2024.

Table 6: Geely's Disclosed Greenhouse Gas Emissions from 2022 to 2024 for Scope 1, 2, 3, and Supply Chain

Greenhouse Gas Emissions	2022		2023		2024	
	Emission Amount (tCO_2e)	Percent of Total Emissions	Emission Amount (tCO_2e)	Percent of Total Emissions	Emission Amount (tCO_2e)	Percent of Total Emissions
Scope 1	145,563	0.29%	127,437	0.22%	170,646	0.25%
Scope 2 (Market-based)	455,550	0.90%	379,211	0.67%	429,291	0.63%
Scope 3	49,815,353	98.81%	56,273,917	99.11%	67,652,981	99.12%
Scope 3 Category 1	10,433,139	20.69%	12,263,153	21.60%	15,817,608	23.17%
Scopes 1, 2, 3	50,416,466	/	56,780,564	/	68,252,917	/

(Data source: Geely Automobile Holdings Limited 2024 Environmental, Social, and Governance Report)

For greenhouse gas emissions from "purchased goods and services," Geely has set and disclosed three emission reduction targets (see Table 7), aimed at reducing carbon emissions from the supply chain for each vehicle series, the full lifecycle of a single vehicle, and the full lifecycle of new energy vehicle power batteries.

Table 7: Geely's Disclosed Supply Chain Emission Reduction Targets, 2024 Progress, and Measures Taken

Target	2024 Progress	Emission Reduction Measures
By 2025, reduce per-vehicle lifecycle carbon emissions by over 25%	Single vehicle full lifecycle emissions are 31.4 tons CO_2e/vehicle, a 6.8% reduction year on year, and an 18% reduction compared to 2020.	• Encourage suppliers to use recycled materials, low-carbon materials, and clean energy, cumulatively reducing about 1.433 million tons of CO_2e.

(compared to 2020 baseline)		• As of 2024, 30% of tier 1 suppliers use renewable electricity, with 16% using 100% renewable electricity. • VREMT[23] requires its suppliers to use 100% green electricity in the aluminium ingot production process. • The Zeekr MIX model uses hydro-electric aluminum ingots produced with clean energy for aluminum components such as the upper and lower car body and wheel rims. Compared to aluminum produced with traditional energy, this reduces carbon emissions by approximately 70%, cutting about 1.7 tons of CO_2 emission per vehicle.
By 2025, reduce average supply-side carbon emissions across all vehicle series by 20%	New energy vehicle series supply chain emissions reduced by 10.28% from 2020; internal combustion vehicle series supply chain emissions reduced by 8.03%.	
By 2025, achieve a 25% reduction in lifecycle emissions of power batteries for new energy vehicles	/	• Build carbon footprint information collection and accounting capabilities. • Use of low-carbon aluminum, recycled aluminum, and steel to reduce material emissions. • Use recycled battery cell cathode materials. • Recycle battery shell metals and non-metals. • Increase the share of non-fossil fuel energy in cell production.

(Data source: Geely Automobile Holdings Limited 2024 Environmental, Social, and Governance Report)

To achieve these goals, Geely is pushing suppliers to use recycled materials, low-carbon materials, and clean energy. For example, Geely's key subsidiary in the new energy vehicle battery sector, VREMT, requires suppliers to use 100% green electricity in the aluminum ingot production process. Geely's premium subsidiary brand Zeekr's MIX car model has already used clean energy-produced aluminum

[23] Key subsidiary of Geely Automobile in the new energy vehicle "three-electric" sector.

ingots for aluminum parts like body structures and wheels, which reduces about 1.7 tons of CO2 emissions per vehicle.

Geely's disclosed data shows that in 2024, each single vehicle's full lifetime carbon emissions decreased by 18% compared to the 2020 baseline (with a target reduction of at least 25% by 2025). The average carbon emissions of the new energy vehicle series' supply chain decreased by 10.28% compared to 2020, and the average carbon emissions of the internal combustion engine vehicle series' supply chain decreased by 8.03% compared to 2020 (with a target reduction of 20% by 2025).

BYD and GWM did not disclose supply chain greenhouse gas emissions data or emission reduction targets.

However, BYD disclosed in its sustainability report that it has formulated a supply chain carbon reduction plan, incorporating carbon management requirements into the entire lifecycle management of suppliers. It has set and communicated supply chain carbon reduction goals, and incorporated carbon reduction requirements into related supply chain management policies. BYD encourages suppliers to gradually increase their use of renewable electricity, use new energy vehicles, and promote energy-saving technological improvements to reduce operational carbon emissions.

GWM disclosed in its corporate social responsibility report that it has begun collecting carbon data from key component suppliers, conducting low-carbon supplier assessments, and promoting low-carbon capacity building among suppliers.

With the continuous growth of China's renewable energy generation capacity, the emission hotspots of the automotive industry will gradually shift from the usage stage to the production stage, especially the upstream raw material production stage.[24]

Taking Geely as an example, according to its disclosures, over 60% of the carbon emissions from raw materials in the supply chain for both fuel and new energy vehicles come from steel and aluminum. From 2022 to 2024, the steel consumption in Geely's manufacturing process has continuously increased, with an average growth rate of 20% (see Table 8). This poses a challenge for the company in achieving emissions reduction across the vehicle lifecycle.

[24] https://wwwen.ipe.org.cn/reports/report_22250.html

Table 8: Geely's Disclosed Steel Consumption and Density[25]

Raw Material Used in Manufacturing	Unit	2022	2023	2024
Steel Consumption	Tons	363,557	448,601	521,124
Steel Consumption Density	kg/vehicle	264.05	272.12	239.42

IPE's *Automotive-Steel and Aluminum Green Supply Chain Collaborative Carbon Reduction Research and Evaluation Report*[26] reveals that one of the key pathways to reducing emissions from steel and aluminum manufacturing is by using recycled materials, which reduces fossil energy and electricity consumption in upstream metal smelting processes.

Geely disclosed that it has established a comprehensive closed-loop recycling system for scrap steel and aluminum, covering the entire process from factory waste generation to supplier recycling, to material manufacturers for smelting and regeneration, to parts suppliers for reuse, and finally back to Geely's full supply chain.

Geely also disclosed that it has signed a *Memorandum of Cooperation on the Automotive Steel Circular Economy and Closed-loop Recycling Value System* with Shougang Group, aiming to improve the closed-loop recycling system for automotive scrap steel, achieving nearly 40% closed-loop recycling in the automotive steel supply chain.

However, comparing the disclosed data from the three companies (see Table 9), in 2024, GWM recycled over 210,000 tons of steel, 14 times more than Geely. BYD did not disclose data on steel recycling but recycled over 160,000 tons of aluminum, 32 times more than Geely.

BYD also disclosed that it considers recyclability from the product design phase and uses aluminum alloys with high recyclability in the metal components of its products.

[25] Geely's disclosed information includes Geely, Zeekr, and Lynk & Co's 16 car assembly factories (Hangzhou Bay Plant 2, Baoji, Jinzhong, Xi'an, Changxing, Da Jiangdong (Qiantang), Linhai, Guiyang, Xiangtan, Jinan, Lynk & Co Chengdu, Lynk & Co Yuyao, Lynk & Co Zhangjiakou, Zeekr Meishan, Zeekr Chunxiao, Zeekr PMA), 10 power bases, and office spaces (Hangzhou headquarters, Ningbo research center)).

[26] https://oaallfile.oss-cn-qingdao.aliyuncs.com/20250311/20250311035822101 9b64844c401ba49f0b3e655c38a2e6c55.pdf

Table 9: Steel and Aluminum Recycling Volumes Disclosed by BYD, Geely, and GWM in 2024

Brand	Recycled Steel	Recycled Aluminum
BYD	/	162,178.73 tons of recycled scrap aluminum (103,418.32 tons from vehicle parts)
Geely	Closed-loop recycling of over 15,000 tons of circular steel	Closed-loop recycling of approximately 5,000 tons of circular aluminum
GWM	211,700 tons of recycled steel	3,525 tons of non-ferrous metals

(Data sources: BYD Co. Ltd 2024 Sustainability Report; Geely Automobile Holdings Limited 2024 Environmental, Social, and Governance Report; Great Wall Motor Co. Ltd 2024 Corporate Social Responsibility Report)

Despite Geely's significantly lower steel and aluminum recycling volumes compared to BYD and GWM, Geely disclosed that it is committed to using 20% recycled steel, 30% recycled aluminum, and 25% recycled plastics in new vehicle models' components that can use circular materials. Geely's disclosed data shows that the recycled steel and aluminum content in several mass-production models reached 15% and 25%, respectively. For example, the recycled steel content in the Geely Galaxy E8 model reached 29.8%, while the recycled aluminum content in the Lynk & Co 07EM-P2 model reached 36.4%.

GWM disclosed that its Body-in-White structure's recycled steel ratio increased by over 14%, and the ratio of recycled aluminum used in key components like cylinder heads and cylinder blocks exceeded 19.8%.

We have not seen BYD disclose any relevant data.

Table 10: Recycled Steel and Aluminum Usage Ratios in 2024

Brand	Recycled Steel Usage Ratio	Recycled Aluminum Usage Ratio
BYD	/	/
Geely	Several mass-produced models have 15% recycled steel	Several mass-produced models have 25% recycled aluminum
	Geely Galaxy E5 has 22% recycled steel	Geely Galaxy E5 has 30% recycled aluminum
	Geely Galaxy E8 has 29.8% recycled steel	Geely Galaxy E8 has 30% recycled aluminum

	Lynk & Co 07EM-P2 has 28.3% recycled steel	Lynk & Co 07EM-P2 has 36.4% recycled aluminum
	Zeekr MIX has 15% recycled steel	Zeekr MIX has 25% recycled aluminum
GWM	Recycled steel ratio increased by 1% (Body-in-White structure's recycled steel ratio increased by >14%)	Recycled aluminum used in key parts like cylinder heads and cylinder blocks exceeds 19.8%

(Data sources: BYD Co. Ltd 2024 Sustainability Report; Geely Automobile Holdings Limited 2024 Environmental, Social, and Governance Report; Great Wall Motor Co. Ltd 2024 Corporate Social Responsibility Report)

Geely's achievement of a higher recycled steel and aluminum usage ratio despite much lower recycling volumes than GWM warrants further clarification from the company.

II. Environmental Performance

In modern environmental governance systems, enterprises should assume primary responsibility for ecological environmental protection. Leading companies should also extend their environmental management upstream throughout the supply chain, continually monitoring and tracking the environmental compliance performance of suppliers and encouraging suppliers with violations to promptly take corrective actions and disclose their environmental compliance status.

The *2024 Green Supply Chain CITI Index Evaluation Report*[27] published by IPE points out that the level of green supply chain management in the automotive industry has generally improved. Although most automakers have begun to build supply chain environmental management systems, compared to the IT and textile industries, automakers have generally failed to effectively drive suppliers to improve their environmental performance and disclosure levels. The industry's green supply chain management efficiency and effectiveness need to be improved.

1. GWM Suspected Supplier Violation, Defects in Supply Chain Environmental Management

GWM disclosed that the company has issued the "GWM Supplier Sustainability Notice" to explain sustainability requirements to suppliers and require their compliance. It also conducts assessments of suppliers' social responsibility management across multiple dimensions such as environmental protection, hazardous substances control, and legal compliance, requiring 100% of suppliers to provide environmental impact reports, which include water conservation requirements.

However, IPE's research found that 12 companies with environmental violations may be part of GWM's supply chain. Among them, Nobo Automotive Rubber and Plastics (Anhui) Co., Ltd., a suspected supplier (and an affiliate owned by GWM), was found to have discharged water pollutants through underground pipes in February 2025, resulting in excessive discharge of COD and total phosphorus in wastewater. The company was fined 736,000 RMB.[28]

[27] https://www.ipe.org.cn/reports/report_22224.html

[28]https://wwwen.ipe.org.cn/IndustryRecord/RegulatoryRecord.aspx?companyId=451911336A2589F6433696B3C641B0A9F3EB1A7C9CF6BAF4CC0A86C587421E09&type=1

Nobo's environmental impact assessment report on the *Annual Production of 2.6 Million Automotive Parts* (see Figure 2)[29] and the "Pollution Discharge Permit"[30] for the rubber division plant show that the company's degreasing and electrophoresis wastewater contains COD, suspended solids (SS), ammonia nitrogen, total nitrogen (TN), total phosphorus (TP), and anionic surfactants (LAS). The wastewater is treated at the factory's sewage treatment plant before discharging to the Huaiyuan Economic Development Zone's second wastewater treatment plant and is finally being discharged into the Beifei River.

Wastewater Type	Pollutant Type	Discharge Process	Discharge Patterns	Pollution Control Facilities			Discharge Ports Meet Requirements	Discharge Port Type
				Number	Name	Mechanism		
…								
Degreasing wastewater, electrophoretic wastewater	COD, SS, ammonia nitrogen, TN, TP, LAS	Discharged to factory's sewage treatment station	Continuous discharge, stable flow rate	TW001	Integrated production wastewater treatment system	Sedimentation - Hydrolytic acidification - Contact oxidation	Yes	Wastewater total discharge outlet

Figure 2: Nobo Automotive Rubber and Plastics (Anhui) Co., Ltd. Pollutants from Degreasing and Electrophoresis Wastewater, Treatment Facilities, and Discharge Points

Nobo Automotive Rubber mainly produces automotive rubber parts such as shock absorbers and seals. The Huaiyuan County government's WeChat public account, "Huaiyuan Release," published an article in October 2024[31], pointing out that Nobo Automotive Rubber, in addition to providing parts for the full range of GWM products, is actively preparing for orders from NIO and Chery.

As an affiliated enterprise of the publicly listed GWM, as of the publication of this research brief, we have not seen any temporary announcements issued by GWM regarding the environmental violation and fine of 736,000 RMB for Nobo Automotive Rubber.

On March 31, 2025, Nobo Automotive Rubber was included in the 2025 information disclosure list[32] according to the *Measures for the Administration of the Law-based Disclosure of Environmental Information by Enterprises* and is obligated to disclose information on administrative penalties related to ecological and environmental violations. However, as of the publication of this research brief, no

[29] https://www.ahhy.gov.cn/zfxxgk/public/24551/50822955.html

[30] https://permit.mee.gov.cn/perxxgkinfo/syssb/wysb/hpsp/hpsp-company-sewage!showImage.action?dataid=73873f0141154edf939f172706f6a0fa

[31] https://mp.weixin.qq.com/s/JOveNPd0xKRGA-1_Ekf0bQ

[32] https://sthjj.bengbu.gov.cn/xwdt/tzgg/140884969.html

temporary reports regarding the environmental penalties have been disclosed by the company.

On June 20, 2025, IPE sent a letter to GWM inquiring whether Nobo Automotive Rubber and 11 other companies with environmental violations are part of the GWM supply chain but received no response.

On June 27, IPE called the phone number listed in the GWM CSR report. The response from GWM was that they were unsure which department handled the relevant matters and could not forward the email or transfer the call.

2. BYD Actively Responds, Geely Discloses Management Progress, But Both Are Significantly Behind Leading Brands

BYD disclosed that it has formulated internal systems such as the *BYD Supplier ESG Management Regulations*, which clearly define requirements for suppliers in environmental protection and other areas to ensure compliance with laws and regulations and reduce supply chain risks. BYD also disclosed that it is formulating a green procurement policy to establish and improve a "green supplier, green raw material" green procurement system. It also recommends that suppliers establish and continuously improve their environmental management systems according to ISO 14001 standards, prioritize the use of clean energy, save resources, and focus on controlling hazardous substances in products.

On June 20, 2025, IPE sent a letter to BYD, inquiring about whether 21 companies found to have environmental violations through public data searches are part of its supply chain. These violations included exceeding emissions limits for air pollutants, abnormal operation of water pollution control facilities, unapproved construction, and unapproved investment. On June 25, BYD replied, stating:

“BYD cannot control the real-time behavior of its suppliers. Most of the administrative penalties mentioned in the list were issued in 2024; as stated in our *2024 Annual Sustainability Report* (Page 113), we review all suppliers on a three-year cycle, so some suppliers may have been penalized after the audit was completed.

In our on-site audits of suppliers, there is a clause that asks: ‘Has the supplier been penalized for environmental violations in the last five years? If yes, has the issue been rectified?’ We will visit the supplier’s site to confirm whether the issue has been rectified and request proof of government approval to close the loop.

Whether or not suppliers publicly disclose their rectification progress is voluntary, and we do not interfere as long as they complete the rectification and submit evidence to us."

Geely disclosed that it has set up a new "Green Supply Chain Task Force" within its ESG working group, responsible for research on supplier ESG and "dual carbon" trends, system establishment, risk assessment, index improvement, and supervision. Geely has built a sustainable indicator management system, AESGC, to manage sustainability across five dimensions: Ability, Environmental, Social, Governance, and Carbon. During the supplier admission phase, Geely incorporates AESGC into its *Supplier 5A Review and Evaluation System* and conducts sustainability evaluations for suppliers; during the operation phase, Geely evaluates supplier performance regularly on a quarterly basis, incorporating AESGC into supplier performance management.

Geely's ESG management guidelines for suppliers include requirements to comply with all applicable environmental laws and regulations, obtain and update all necessary environmental permits and qualifications (such as ISO 14001 environmental management system certification), and conduct annual tests for the three wastes (noise/air/water), with qualified reports. The company also requires proper disposal of hazardous waste according to national laws and regulations, and it plans to reduce waste in production facilities.

However, IPE's research found that 19 companies with environmental violations may also be part of Geely's supply chain. These violations include discharging wastewater and air pollutants outside of authorized discharge points, and failing to operate air and wastewater treatment facilities, resulting in untreated volatile organic compounds being released. As of the publication of this research brief, IPE has not received a reply from Geely.

This highlights that both BYD and Geely still have significant gaps in supply chain environmental management compared to leading companies.

Since IPE launched its Green Supply Chain CITI Index evaluation in 2014, the awareness of the need for environmental management in supply chains has gradually become mainstream. Over 100 leading Chinese and international companies have used public regulatory information to push more than 34,000 suppliers to improve or disclose their environmental information, showcasing their efforts to improve environmental performance. In the past three years, these leading companies have required more than 4,600 companies take corrective actions

on environmental violations such as exceeding pollutant emissions limits, unapproved pollutant discharges, and failure to undergo approved environmental restoration after project completions, and they have publicly disclosed the progress of these corrections and their current environmental compliance status.

IPE's 2024 Green Supply Chain CITI Evaluation and Climate Action CATI Index Evaluation (Table 11) show that Geely ranks in the top 5 of the automotive industry, while BYD and GWM are ranked in the lower-middle tier.

Table 11: 2024 CITI and CATI Index Scores and Rankings for BYD, Geely, and GWM

Brand	2024 CITI Evaluation		2024 CATI Evaluation	
	Index Score	Automotive Industry Ranking	Index Score	Automotive Industry Ranking
BYD	15.76	24	16.30	42
Geely	26.53	5	61.9	4
GWM	11.52	38	24.10	34

It is important to note that although Geely performs well, there is still a significant gap between its green supply chain and climate action performance compared to the global leading brands, indicating substantial room for improvement.

In our ongoing evaluation, we observe that BYD has disclosed more positive climate actions through its latest sustainability report, and its 2025 CATI evaluation score is expected to improve.

We suggest BYD, Geely, and GWM, as leading companies in the competitive market, continue to reduce their negative environmental impacts and carbon footprint of their own operations. Furthermore, they should lead key suppliers in complying with environmental standards by monitoring their carbon emissions, setting reasonable emission targets, and accelerating the implementation of energy-saving and emission-reduction measures.

We also suggest that consumers pay attention to automakers' environmental performance and climate actions in order to encourage companies to enhance the transparency of their environmental and climate information and to showcase their actions in environmental protection and climate change, fulfilling their primary responsibility in reducing pollution and lowering carbon emissions.

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