LIFE CYCLE ASSESSMENT REPORT

of GEELY ZEEKR 7GT

LCA Practitioner(s): Jiaang Li, Jianing Liu, Tianning Zhao, CATARC.
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Abbreviation

BOM: Bill of Materials

CALCD: China Automotive Life-Cycle Database

CALCM: China Automotive Life-Cycle Assessment Model

CATARC: China Automotive Technology and Research Center Co., Ltd.

CKD: Completely Knocked Down

CICES: China Industrial Carbon Emissions Information System

EoL: End-of-Life

GHGs: Greenhouse Gases

GWP: Global Warming Potential

NRF: Non-Renewable Fossil

IPCC: Intergovernmental Panel on Climate Change

ISO: International Organization for Standardization

LCA: Life Cycle Assessment

LCI: Life Cycle Inventory

LCIA: Life Cycle Impact Assessment

LFP: Lithium Iron Phosphate

OEMs: Original Equipment Manufacturers

PV: Photovoltaic

SEA LCA: Sino-European Automotive Carbon Footprint Mutual Recognition Research Working Group

WLTP: Worldwide Harmonized Light Vehicle Test Procedure

Executive Summary

With the vision of "leading the green and intelligent mobility ecosystem," Geely building a strong edge in green and low-carbon transportation technology and delivering intelligent mobility experiences that exceed expectations worldwide. Through the Geely Solution, we are exploring a path toward modernization centered on the harmonious coexistence between humanity and nature.

The subject of this **Life Cycle Assessment (LCA)** is the ZEEKR 7GT, which is manufactured in Ningbo, China, and exported for sale and use in the European market. This study aims to **systematically and transparently** present the **carbon footprint** and **primary energy consumption** of the vehicle across its entire life cycle—covering material acquisition and processing, vehicle production, cross-border transportation, use in Europe, and end-of-life recycling. The study is strictly conducted in accordance with **ISO 14040/44** and the *Sino-European Automotive Carbon Footprint Mutual Recognition (SEA LCA) Guidelines*, which are based on **ISO 14067**, and has been subject to independent third-party critical review. It should be noted that the findings of this study are not directly comparable with those of other studies unless the same methodology, system boundaries and assumptions are applied.

In terms of technical approach, this study adopts a conservative estimation principle to avoid underestimating environmental impacts. The vehicle lifetime is set at **16 years or 240,000 km**, and the driving cycle employed is WLTC. For data sources, priority is given to primary data collected from Geely's Ningbo production plant, supplemented by internationally recognized databases including CALCD, Ecoinvent and Green NCAP. The entire assessment process has undergone independent expert review to ensure compliance with international standards.

This disclosure reflects our ongoing commitment to ecological innovation, global transparency and stakeholder engagement, providing customers, investors, employees, partners and policymakers with clear insights into the environmental performance of our products.

Key findings

- **Total Carbon Footprint**

The **life-cycle carbon footprint** of the **ZEEKR 7GT** is **104.97 g CO_2e/km** (24,891.09 kg CO_2e over 240,000 km).

  - The **material acquisition and processing stage** is the largest contributor at **60.4% (63.35 g CO_2e/km)**, dominated by **steel and aluminium components (62.1% of this stage's emissions)** and the **LFP power battery (38.0%)**.
  - The **use stage in Europe** contributes **36.4% (38.24 g CO_2e/km)**, mainly from **electricity production**.
  - The **production in Ningbo (1.2%), shipping to Europe (1.4%), and end-of-life treatment in Europe (0.6%)** contribute marginally.

- **Primary Energy Consumption**

The **total life-cycle primary energy consumption** is **1.912 MJ/km** (≈ 458,858 MJ over 240,000 km)).

  - The **use stage in Europe** accounts for **70.0% (1.338 MJ/km)**, primarily from **electricity generation(94.7% of use-stage energy)** .
  - The **material stage** contributes **27.8% (0.532 MJ/km)**, while **production, shipping, and end-of-life together account for less than 3%**.

- **Key Impact Drivers**

  - In upstream phases, **steel, aluminium alloys, and the LFP battery** are the most significant contributors.
  - **Energy production during the use stage** are the leading drivers of both carbon and energy impacts.
  - The **electricity mix** plays a decisive role—**charging with renewable energy such as wind or solar can substantially reduce life-cycle emissions**.

- **Sensitivity Analysis**

A ±10% change in **use-phase electricity consumption** leads to a ±3.36% change in the **life-cycle carbon footprint** and a ±6.63% change in **primary energy consumption**.

Implications and Recommendations

- **Advance Low-Carbon Materials**

  While ensuring structural strength, further expand the application of recycled steel and recycled aluminum to more components, and set higher recycled content targets for subsequent vehicle models. At the same time, collaborate with battery suppliers on LCA tracing, prioritizing low-carbon cathode materials, recycled copper foil and recycled aluminum casings to reduce embodied carbon at the cell level..
- **Decarbonizing Manufacturing**

  Expand on-site PV capacity and energy storage to increase green electricity self-consumption. Procure green power to raise the share of renewables in purchased electricity. Explore electric or hydrogen heating to replace natural gas in high-heat processes, and enhance waste heat recovery, thereby reducing production-stage carbon intensity through multiple measures.
- **Enhance Vehicle Efficiency**

  Continuously reduce the vehicle's electricity consumption per 100 km through lightweight design, low-drag aerodynamics, and efficient thermal management systems, thereby reducing electricity demand from the consumption side.

Research Team

Dr. Xin Sun, China Automotive Carbon Digital Technology Center Co.,Ltd.

Jiali Wu, China Automotive Carbon Digital Technology Center Co.,Ltd.

Jin Zhao, China Automotive Carbon Digital Technology Center Co.,Ltd.

Jiaang Li, China Automotive Carbon Digital Technology Center Co.,Ltd.

Jianing Liu, China Automotive Carbon Digital Technology Center Co.,Ltd.

Tianning Zhao, China Automotive Carbon Digital Technology Center Co.,Ltd.

Qingyu Meng, Automotive Test & Assessment Management Center of CATARC

Rui Su, Automotive Test & Assessment Management Center of CATARC

Dr. techn. Aleksandar Damyanov, Green NCAP

Jiaming Xu, Geely Automobile Research Institute (Ningbo) Co., Ltd.

Chenxin Zhang, Geely Automobile Research Institute (Ningbo) Co., Ltd.

Zijun Sun, Geely Automobile Research Institute (Ningbo) Co., Ltd.

Contacts

sunxin@catarc.ac.cn

zhaotianning@catarc.ac.cn

1 Overview

1.1 About Geely and Zeekr

Geely Auto was founded in 1997 with its headquarters in Hangzhou, Zhejiang Province, China. Relying on the constant pursuit of technological innovation, Geely has become one of the leading passenger vehicle enterprises in China, mastering core technologies encompassing engine, transmission, chassis, new energy power systems and intelligent driving platforms. Geely has also been a pioneer in global expansion, being one of the first Chinese automotive groups to export vehicles, CKD parts and manufacturing technologies to overseas markets. After more than 20 years of development, Geely's sales and service network covers more than 60 countries and regions, with cumulative global sales exceeding 15 million units, earning the trust of consumers worldwide.

Zeekr is a sub-brand of Geely Auto Group, focusing on the global luxury intelligent electric vehicle market. Leveraging Geely's vast technological resources and its independently developed Sustainable Experience Architecture (SEA), Zeekr has rapidly established core competencies in battery systems, electric drive systems, electronic and electrical architecture, and intelligent driving platforms. With R&D centers worldwide, including a major technology hub in Gothenburg, Sweden, Zeekr continues to drive innovation in high-performance electric vehicles, ultra-fast charging technology and next-generation smart cockpit systems. Since its inception in 2021, Zeekr has quickly expanded its sales and service network to more than 45 countries and regions, delivering over 660,000 vehicles and gaining strong recognition from consumers globally.

1.2 About the Product

This report takes ZEEKR 7GT as the research object. The vehicle model image is shown in Figure 1-1, and the basic information of the model is shown in Table 1-1.



Figure 1-1 Picture of ZEEKR 7GT

Table 1- 1 Basic parameters of ZEEKR 7GT

Item	Parameter
Vehicle Name	ZEEKR 7GT
Sales Model	Zeekr 7GT Business Edition RWD
Vehicle Class	B
Length (mm)	4817
Width (mm)	1910
Height (mm)	1456
Wheelbase (mm)	2900
Curb Weight (kg)	2213[1]
Gross Vehicle Weight (kg)	2710
Power Type	BEV
Energy Consumption (kWh/100km)(WLTC)	16.6
Power Battery Type	LFP
Power Battery Weight (kg)	585
Power Battery Energy (kWh)	75
Range (km)(WLTC)	519

1.3 Relevant standards

The quantitative methods in this report are in compliance with ISO 14040[1]/44[2] and the Guidelines for *Sino-European Automotive Carbon Footprint Accounting, Verification, and Mutual Recognition* (SEA-Guidelines)[4] developed by the Sino-European Vehicle Carbon Footprint Mutual Recognition Research Working Group (SEA LCA) and are based on ISO 14067[3].

[1] This calculation use a value calculated by material summation of 2,213 kg, versus the announced value of 2,190 kg. This is because mass data obtained from various suppliers, when aggregated, tends to deviate from the officially announced weight of the actual vehicle model (within ± 3%). To ensure that the environmental impact assessment results are not underestimated, a conservative approach (taking the higher value) has been uniformly applied in the data processing.

2 Methodology

2.1 Goal of the Study

This study takes GEELY's ZEEKR 7GT as the research object to quantitatively account for its carbon footprint and primary energy consumption.

This study is conducted by SEA LCA with the goal of increasing transparency by disclosing the carbon footprint and the primary energy demand of the vehicle model. The results are not intended for comparative assertions intended to be disclosed to the public

The target group of this report includes customers, Geely employees, investors, automotive original equipment manufacturers (OEMs), and other stakeholders who are interested in the environmental performance of Geely vehicles.

2.2 Scope of the Study

2.2.1 Functional Unit

The functional unit accounted for in this report is the transportation service provided by a ZEEKR 7GT vehicle with a mass of 2213 kg, driving 1 km, and a life-cycle driving mileage of max. 240,000 km in max. 16 years.

2.2.2 System Boundaries

As shown in Table 2- 1, the system boundary covers the material acquisition and processing stage, vehicle production stage, the use stage, and the end-of-life (EoL) stage. Material Acquisition and Processing Stage and Vehicle Production Stage both take place in China, with materials/components being sourced from suppliers within the country. Use Stage and End-of-Life Stage both take place in Europe.

Table 2- 1 ZEEKR 7GT Vehicle Life-Cycle System Boundaries

Life Cycle Stage	Process	Brief Description of the Process
Material Acquisition and Processing Stage (A)	Vehicle Component Materials (A_1)	Primary materials include: resource extraction, processing and purification, and raw-material production and processing; Recycled materials include: waste collection and recycling-material production and processing.
	Tire Materials (A_2)	Primary materials include: resource extraction, processing and purification, and raw-material production and processing; Recycled materials include: waste collection and

Life Cycle Stage	Process	Brief Description of the Process
		recycling-material production and processing.
	Fluid Materials (A_3)	Primary materials include: resource extraction, processing and purification, and raw-material production and processing; Recycled materials include: waste collection and recycling-material production and processing.
	Li-ion Starting Battery Materials (A_4)	Primary materials include: resource extraction, processing and purification, and raw-material production and processing; Recycled materials include: waste collection and recycling-material production and processing.
	Power Battery Materials (A_5)	Primary materials include: resource extraction, processing and purification, and raw-material production and processing; Recycled materials include: waste collection and recycling-material production and processing.
	Other Component Materials (A_6)	Material acquisition and processing processes for components other than vehicle parts, tire, fluids, Li-ion starting battery, and power battery.
Vehicle Production Stage (C)	Vehicle Stamping (C_1)	Stamping process of the body-in-white (fenders, doors, engine hood, trunk lid, roof, other body structural parts and panels).
	Vehicle Welding (C_2)	Welding process of the body-in-white (fenders, doors, engine hood, trunk lid, roof, other body structural parts and panels).
	Vehicle Painting (C_3)	Painting process of the body-in-white (fenders, doors, engine hood, trunk lid, roof, other body panels).
	Vehicle Final Assembly (C_4)	Assembly of individual automotive components and systems (such as engine, chassis, electrical systems, and body) on an assembly line into a complete electric passenger vehicle.
	Powerhouse Facilities (C_5)	Process of supplying power energy—electricity, compressed air, cooling water, hot water, steam, etc.—to the production process.
Vehicle Transportation Stage (D)	Vehicle Transportation (D_1)	Process of vehicle transported from China to Europe.
Use Stage (E)	Fuel Production (E_1)	Production process of electricity.

Life Cycle Stage	Process	Brief Description of the Process
	Fuel Use (E_2)	Use phase of electricity.
	Component Replacement (E_3)	Material acquisition and processing processes related to replacement, maintenance, and repair of components (vehicle components, tires, and fluids).
	Refrigerant Use (E_4)	Leakage/emission process of refrigerants.
End-of-Life Stage (F)	End-of-Life Dismantling (F_1)	Processes of disassembling, collecting, dismantling, residual energy detection, sorting, shredding, landfilling, incineration, etc., of end-of-life vehicles.

2.2.3 Main Assumptions and Exclusions

In general, assumptions have been made in a conservative fashion following the precautionary principle, in order to not underestimate the climate and primary energy demand impact from unknown data.

In vehicle production stage, no emission factor is available for self-generated PV power; thus, the factor for purchased PV electricity is used as a substitute. Since production of the Zeekr 7 GT for the European market only began in March 2026, the available data on its production energy consumption is statistically insufficient, characterized by a limited data volume and a short collection period. During the data collection and review process, it was observed that this model shares the same production platform, paint shop, and final assembly lines with the ZEEKR models produced at the Geely Meishan plant in 2025, and that the curb weights of these models are generally similar to or lower than that of the Zeekr 7 GT. Based on the similarity in production processes and input structures, the adoption of the average energy consumption of all models produced at the plant in 2025 as the assumed value for the Zeekr 7 GT's production energy consumption is methodologically justified and consistent with common LCA practice regarding trade-offs between data availability, representativeness, and conservativeness.

The use phase assumes a lifespan of 16 years of the vehicle, probable changes in the gasoline and electricity mix during this time is considered in the study based on the Green NCAP[13]. Vehicle energy consumption corresponds to driving according to the WLTP driving cycle, with a total lifetime mileage of 240,000 km. Both the Li-ion starting battery and the Li-ion traction battery are assumed to maintain performance over the full lifetime mileage of the vehicle.

In addition, the use phase also accounts for tires and fluid replacements as well as refrigerant leakage events.

2.2.4 Allocation

For data on material acquisition and processing stage, all production-related emissions for materials destined for recycling are allocated to the vehicle. The quantities of steel, aluminium, thermoplastics, thermosets, and textiles counted include not only the amounts actually incorporated into the vehicle, but also any material removed during processing and subsequently sent for recycling throughout the entire manufacturing chain—accounting for material-utilisation efficiency.

For data on the vehicle production stage, the energy consumption covering electricity, natural gas, and other fuels used across all manufacturing processes is calculated as an average value per vehicle based on the total production volume of all models.

In end-of-life analysis of a product's life cycle, only the environmental impacts directly attributable to the current product system are quantified according to the Cut-off method; any environmental benefits or burdens arising from the subsequent use of recovered materials or energy are allocated to other product systems.

2.2.5 Cut-off Criteria

For data collected from on-site enterprise surveys, all data parameters related to production within the system boundaries should be included. Appropriate cut-off approach shall be applied to calculate these parameters.

In material acquisition and processing stage, for each component, materials accounting for less than 3% of the components weight (including sub-assemblies, tires, Li-ion traction battery and fluids) may be excluded from the calculation to streamline data processing and model computation. However, to ensure the integrity of the input material mass balance, the total weight of these omitted materials must be reallocated to the input corresponding to the material with the highest carbon emissions within that component. The categories classified as "Others" were excluded from this allocation.

Raw-material and component transports were not included in the calculation model, as the upstream supply chain is highly fragmented and geographically dispersed, making it impractical to obtain accurate data on transport distances, modes, and load factors.

The energy consumption during the vehicle production stage is addressed in accordance with the cut-off criteria. During data review and processing, energy consumption from both production

workshops and office areas has been included in the calculations. Compared with a scenario where only workshop energy consumption is accounted for, this approach results in a slight increase in total energy consumption, by approximately 1%. Energy consumption from areas leased to third parties within the plant premises, such as supplier workshops, canteens, and dormitories, is excluded from the scope of this study.

It should be noted that diesel is typically not consumed during routine plant operations. However, due to plant renovation work carried out for a portion of March 2025, some diesel was used for electricity generation. To remain consistent with the actual conditions at the plant, this study did not apply any cut-off to diesel consumption and instead included it in the accounting of energy consumption, so as to reflect its impact on the production energy consumption of the vehicle.

In end-of-life stage, the treatment encompasses dismantling and pre-treatment (including shredding and component-specific pre-treatment), but excludes material separation and refining.

All greenhouse gas emissions and energy consumption associated with production activities within the system boundary have been included in the calculations.

No additional cut-off criteria for mass, energy or environmental impacts were applied.

2.3 Critical Review

A critical review in accordance with ISO 14071 was performed as a final, voluntary assurance activity. Compliance with ISO 14040[1], ISO 14044[2] and the SEA LCA Guidelines[4] was systematically and independently scrutinised. The review was executed by external experts and Mr. Florian Bodrogi and Mr. Steffen Albers of DEKRA Assurance Services GmbH.

3 Life Cycle Inventory Analysis

The life-cycle material data of ZEEKR 7GT are provided by Geely, while the background data on materials and energy in this study are primarily sourced from the China Automotive Life Cycle Database (CALCD)[6]-[11], Ecoinvent 3 database **错误!未找到引用源。** and Green NCAP.

CALCD is Developed by the China Automotive Technology and Research Center Co., Ltd. (CATARC), which is a localized, process-based Life Cycle Inventory (LCI) database specifically designed to reflect the characteristics of China’s automotive industry. It includes more than 20,000 unit processes, encompassing basic manufacturing processes and product datasets such as metals, minerals, plastics, water, chemicals, fuels, and energy production. Moreover, CALCD provides detailed life cycle data for automotive parts and complete vehicles, offering a robust and

comprehensive foundation for conducting life cycle assessments within the context of China's automotive sector.

The Life Cycle Assessment (LCA) in this study was conducted using the China Automotive Life Cycle Assessment Model (CALCM) [9][10][14][15], a localized LCA model also developed by CATARC. CALCM is built upon the CALCD and is designed to help automakers quantify the life cycle carbon footprint and primary energy demand of the automotive products in compliance with international standards including ISO 14040/44 and ISO 14067. The model enables the life cycle assessments across a wide range of automotive applications, including passenger vehicles, commercial vehicles, transport fleets, and batteries. CALCM provides standardized methodological support for environmental performance evaluations and carbon management strategies throughout the automotive product life cycle.

3.1 Data Sources and Quality

3.1.1 Time-related Coverage

All of the datasets used in CALCD are less than 5 years old, while electricity mix and the default carbon emission value in EoL stage are less than 2 years old.

For data on ZEEKR 7GT production stage, the statistical time scope of fuel / energy consumption is from January 1, 2025 to December 31, 2025.

3.1.2 Geographical Coverage

ZEEKR 7GT is produced in Zhejiang Jirun Meishan Auto Parts Co., Ltd., one of Geely’s factory, located at No. 118, Gangcheng Road, Meishan Street, Beilun District, Ningbo City, Zhejiang Province China. For other life cycle stages, the geographical coverage is as follows: raw material acquisition and supply chain stages are based in China, consistent with the production location; the use phase is modeled based on the European driving cycle and European electricity mix; the end-of-life stage is modeled via CALCM for China, which is used as a proxy for Europe due to the absence of region-specific data for the European market.

3.1.3 Technology Coverage

The datasets in CALCD reflect the average process and material performance of enterprises within China’s automotive industry and thus possess strong representativeness. For the use stage, the technology coverage is based on the European driving cycle, with electricity consumption calculated using the European electricity mix model. The energy consumption data for the vehicle production stage were provided by Geely itself. For the end-of-life stage, the technology coverage is

modeled via CALCM for China, covering dismantling and pre-treatment processes, which is used as a proxy for Europe due to the absence of region-specific data for the European market.

3.1.4 Precision

The datasets used in this report are sourced from CALCD and Ecoinvent 3, which have been developed following quality assurance procedures and industry-recognized reviews. The energy consumption data for the vehicle production stage were directly provided by Geely, offering a high level of measurement precision. The relevant data have been cross-verified during the review process.

3.1.5 Reproducibility

As the data used in this study are primarily site-specific, direct replication to other factories or regions may yield different results due to variations in process configurations, energy mix, and supply chains. All major input data have been documented in this report to ensure traceability and verifiability.

3.1.6 Data sources

The primary data by Geely (material composition and energy use during final manufacturing) had already been verified.

The carbon emission factors are sourced from the CALCD. The energy consumption factors are sourced from the CALCD and the Ecoinvent 3 database[12].

Data sources are classified into three quality levels based on data quality:

High quality: Citing primary activity data, referring to site-specific data.

Medium quality: Citing secondary activity data, referring to data from literature or monographs with irregular updates.

Low quality: Citing derived data, referring to estimated or assumed data.

The summary of data sources and their quality is as follows:

Table 3- 1 Data Sources and Data Quality

Data Quality	Data Category	Data Source
High	Vehicle curb weight	Geely

	Vehicle electricity consumption per 100 km	
	Component material raw weight	
	Tire raw material weight	
	Li-ion starting battery material weight	
	Power battery raw material weight	
	Liquid raw material weight	
	Energy consumption data in Vehicle Production Stage	
Medium	Component replacement frequency in Use Stage	CALCM
	Carbon emission of vehicle scrap and dismantling in End-of-Life Stage	
	Carbon emission factor for sea transport in Vehicle Transportation Stage	
Medium	Sea transport distance	www.searates.com
Medium	Material carbon emission factors	CALCD
	Carbon emission factors for Energy consumption in Vehicle Production Stage	
	Carbon emission factors for electricity production in Use Stage	Green NCAP
Medium	Energy consumption factors for fuel production	CALCD, Ecoinvent 3 and Green NCAP
	Energy consumption factors for energy production	
	Material energy consumption factors	

3.1.7 Material Acquisition and Processing Stage

This stage commences with the extraction of resources from nature and concludes when raw materials enter the product production facilities. The material weight data for this stage are provided by Geely. The carbon emission factors for the vast majority of materials are sourced from CALCD. Details are shown in "Others" refers to materials not included in the scope of this study. In the context of component, the Li-ion starting battery, and the power battery, this category primarily

includes adhesives and sealants, metal coatings, brake linings, electrical and electronic equipment, etc.

Table 3-2, Table 3-3, Table 3-4, Table 3-5, and

Table 3-6.

It is worth noting that the ZEEKR 7GT demonstrates outstanding performance in the application of green materials, with a substantial number of its components utilizing recycled aluminum and recycled plastics. Specifically, recycled aluminum accounts for 38% of the material composition in its parts, while recycled plastics account for 2%. For detailed information, please refer to Table 8-2. It should be noted that recycled thermoplastics and recycled aluminum alloy are separate materials and are not the same as the Thermoplastics and Aluminum and aluminum alloys already specified in the table.

"Others" refers to materials not included in the scope of this study. In the context of component, the Li-ion starting battery, and the power battery, this category primarily includes adhesives and sealants, metal coatings, brake linings, electrical and electronic equipment, etc.

Table 3-2 ZEEKR 7GT Material Acquisition and Processing Stage - Bill of Component Material Inputs

Material Category	Weight	Unit	Data Source
Steel	783.002	kg/vehicle	Geely
Cast Iron	52.351	kg/vehicle	Geely
Aluminum and aluminum alloys	173.875	kg/vehicle	Geely
Magnesium and magnesium Alloys	1.162	kg/vehicle	Geely
Copper and copper alloys	39.933	kg/vehicle	Geely
Thermoplastics	215.636	kg/vehicle	Geely
Duromers	29.544	kg/vehicle	Geely
Rubber	25.432	kg/vehicle	Geely
Textiles	32.845	kg/vehicle	Geely
Ceramics / glass	59.346	kg/vehicle	Geely
Recycled aluminium alloys	106.913	kg/vehicle	Geely

Material Category	Weight	Unit	Data Source
Recycled thermoplastics	5.080	kg/vehicle	Geely
Others	43.837	kg/vehicle	Geely

Table 3- 3 ZEEKR 7GT Material Acquisition and Processing Stage - Bill of Tire Material Inputs

Material	Weight	Unit	Data Source
Rubber	36.408	kg/vehicle	Geely
Steel	5.772	kg/vehicle	Geely
Textiles	2.224	kg/vehicle	Geely

Table 3- 4 ZEEKR 7GT Material Acquisition and Processing Stage - Bill of Li-ion Starting Battery Material Inputs

Material	Weight	Unit	Data Source
Lithium Iron Phosphate (LFP)	0.416	kg/vehicle	Geely
Graphite	0.184	kg/vehicle	Geely
Copper and copper Alloys	0.245	kg/vehicle	Geely
Aluminum Alloys	0.208	kg/vehicle	Geely
Electrolyte: Lithium hexafluorophosphate	0.240	kg/vehicle	Geely
Thermoplastics	0.746	kg/vehicle	Geely
Steel	0.046	kg/vehicle	Geely
Rubber	0.000	kg/vehicle	Geely
Textiles	0.000	kg/vehicle	Geely
Duromers	0.114	kg/vehicle	Geely
Ceramics / glass	0.002	kg/vehicle	Geely
Others	0.132	kg/vehicle	Geely

Table 3- 5 ZEEKR 7GT Material Acquisition and Processing Stage - Bill of Power Battery Material Inputs

Material	Weight	Unit	Data Source

Lithium Iron Phosphate (LFP)	170.500	kg/vehicle	Geely
Graphite	81.340	kg/vehicle	Geely
Copper and copper Alloys	39.860	kg/vehicle	Geely
Aluminum Alloys	147.891	kg/vehicle	Geely
Electrolyte: Lithium hexafluorophosphate	73.696	kg/vehicle	Geely
Thermoplastics	23.859	kg/vehicle	Geely
Steel	17.461	kg/vehicle	Geely
Rubber	1.640	kg/vehicle	Geely
Textiles	0.795	kg/vehicle	Geely
Duromers	2.638	kg/vehicle	Geely
Ceramics / glass	4.830	kg/vehicle	Geely
Others	21.555	kg/vehicle	Geely

Table 3- 6 ZEEKR 7GT Material Acquisition and Processing Stage - Bill of Liquid Material Inputs

Material	Weight	Unit	Data Source
Lubricating oil	1.300	kg/vehicle	Geely
Brake Fluid	0.961	kg/vehicle	Geely
Coolant	8.189	kg/vehicle	Geely
Refrigerant (HFO-1234YF)	0.875	kg/vehicle	Geely
Detergent	0.800	kg/vehicle	Geely

The material use factor[16] refers to the actual amount of raw materials used divided by the actual amount of materials used in the vehicle. The material use factor is one of the important factors, which is mainly used to reflect the actual efficiency of specific materials in the material acquisition and processing stage. In order to ensure the reasonableness and accuracy of the coefficients, we use two data sources to determine the default values:

Firstly, through a survey of 50 OEMs in China, the material usage of representative parts was

obtained, and the use factor of each material was determined. Secondly, through the CICES, the material consumption information of suppliers of parts and components enterprises was investigated. Combining these two data sources, we determined the default values for the material use factor to ensure that in the absence of specific data, the standard still provides a reasonable estimate based on industry realities.

The default values of material use factors are shown in Table 3-7. Within the scope of this document, the default values can be replaced by primary data or authoritative data issued by government authorities. In this study, the material use factor for “low-carbon aluminium” was provided by Geely. According to the low-carbon aluminium data in CICES, the original material input has already been accounted for in the calculation of the carbon emission factor. Consequently, its material use factor is 100 %, which differs from the factors applied to aluminium and aluminium alloys.

Table 3-7 Default Value of the Material Use Factor

Material	Material Use Factor	Data Source
Steel	170%	CALCM
Cast Iron	105%	CALCM
Aluminum and Aluminum Alloys	120%	CALCM
Magnesium and magnesium Alloys	100%	CALCM
Copper and copper Alloys	100%	CALCM
Thermoplastics	110%	CALCM
Duromers	110%	CALCM
Rubber	100%	CALCM
Textiles	110%	CALCM
Ceramics / glass	100%	CALCM
Adhesives/Sealants	100%	CALCM
Other Mixtures (Metal Coatings, Brake Linings, etc.)	100%	CALCM
Electrical/Electronic Equipment	100%	CALCM

Thermoplastic Elastomers	100%	CALCM
Other Plastics	110%	CALCM
Coatings	100%	CALCM
Lead	100%	CALCM
Sulfuric Acid	100%	CALCM
Fiberglass	100%	CALCM
LFP	100%	CALCM
Graphite	100%	CALCM
Electrolyte: Lithium hexafluorophosphate	100%	CALCM
Lubricating oil	100%	CALCM
Brake Fluid	100%	CALCM
Coolant	100%	CALCM
Refrigerant	100%	CALCM
Detergent	100%	CALCM
Recycled aluminium alloys	100%	Geely
Recycled thermoplastics	100%	Geely

3.1.8 Vehicle Production Stage

This stage begins when raw materials, components, and semi-finished products enter the production site and ends when finished vehicles leave the manufacturing plant. The production stage primarily accounts for energy consumption and emission data from processes such as stamping, welding, painting, final assembly, and power station operations of the vehicle. Based on the data provided by Geely, the energy consumption data of the plant's vehicle production stage from January 1, 2025 to December 31, 2025 are adopted for estimation. In terms of data allocation, the total energy consumption during the vehicle production stage is allocated on an average basis according to the total production volume of all models produced during this period, i.e., the total energy consumption is divided by the total number of vehicles produced to derive an average energy consumption value per vehicle, which serves as the basis for estimating the production energy consumption of the ZEEKR 7GT, as shown in Table 3- 8 and

Table 3-9. During the statistical period, the plant produced a total of 166,233 vehicles of various models. With regard to the cut-off criteria, energy consumption from production workshops and office areas has been included in the calculations. Compared with a scenario where only workshop energy consumption is accounted for, this approach results in a slight increase in total energy consumption, by approximately 1%. Energy consumption from areas leased to third parties within the plant premises, such as supplier workshops, canteens, and dormitories, is excluded from the scope of this study.

It should be noted that diesel is typically not consumed during routine plant operations. Nevertheless, due to plant renovation work carried out for a portion of March 2025, some diesel was used for electricity generation.

The carbon emission factor for purchased electricity and purchased photovoltaic electricity are 0.5777 kgCO_2e/kWh and 0.0520 kgCO_2e/kWh, respectively, both sourced from data published by China's Ministry of Ecology and Environment in September 2025[17]. Since no specific emission factor is available for self-generated photovoltaic, the factor for purchased photovoltaic was applied as a proxy. For other energy sources, such as natural gas and diesel, the carbon emission factors are sourced from CALCD.

Table 3-8 ZEEKR 7GT Vehicle Production Stage - Bill of Fuel/Energy Consumption

Fuel/Energy Type	Fuel/Energy Category	Amount	Unit	Data Source
Primary energy	Diesel	217000.00	kg	Geely
Primary energy	Natural gas	7427504.00	m^3	Geely
Secondary energy	Purchased electricity	35519499.57	kWh	Geely
Secondary energy	Self-owned photovoltaic	53790121.00	kWh	Geely

Table 3-9 ZEEKR 7GT Vehicle Production Stage - Bill of Direct Greenhouse Gas Emission

Greenhouse gas designation	Direct discharge mode	Amount	Unit	Data Source
CO_2	Carbon dioxide shielded welding (gas cylinder withdrawal, vacuum)	58030	kg	Geely

3.1.9 Vehicle Transportation Stage

This stage includes processes of vehicle transported from China to Europe. According to the information provided by Geely, the vehicle model is exported to Europe by sea, with three loading ports: Taicang, Ningbo and Shanghai. The destination ports include Zeebrugge in Belgium, which has two terminal areas, namely ICO and WWO (with WWO being used less frequently), and Barcelona in Spain. In this report, the assumed scenario for calculating transportation-stage carbon emissions is that the vehicle is shipped from Ningbo Port to the Port of Barcelona.

According to the data in www.searates.com[18], the maritime transportation distance between Ningbo Port and Barcelona Port is 16,066 km. The maritime transport carbon emission factor is 0.010 kgCO_2e/tkm, sourced from EF 3.1 (27,500 dwt payload capacity).

Table 3-10 ZEEKR 7GT Vehicle Transportation Stage - Bill of Transport Distance

Stage	Transport Distance	Unit	Data Source
Vehicle Transportation Stage	16066	km	www.searates.com

3.1.10 Use Stage

The ZEEKR 7GT is set to drive a total of 240,000 km during its lifespan. The vehicle use stage mainly involves energy consumption and material consumption. The electricity consumption is 16.6 kWh/100 km. This stage considers power consumption during vehicle driving, refrigerant leakage, and replacements of liquids, tires, etc. Electricity consumption during the use phase are shown in

Table 3-11. The carbon emission factors for electricity is 0.2124 kgCO_2e/kWh, sourced from Green NCAP. The assumed leakage and replacement frequencies for refrigerants, fluids, tires, etc., are shown in Table 3-12.

Table 3-11 ZEEKR 7GT Use Stage - Bill of ZEEKR 7GT Electricity Consumption

Name	Consumption	Unit	Data Source
Electricity Production	16.6	kWh/100km (WLTC)	Geely
Electricity Use	16.6	kWh/100km (WLTC)	Geely

Table 3-12 ZEEKR 7GT Use Stage - Component Replacement/Emission Frequency

Name	Replacement/Emission Frequency	Data Source
Tire	4 tires, 4 replacements in lifecycle	CALCM
Li-ion Starting Battery	0 replacements in lifecycle	CALCM
Lubricant	47 replacements in lifecycle	CALCM
Brake Fluid	4 replacements in lifecycle	CALCM
Coolant	4 replacements in lifecycle	CALCM
Refrigerant	1 replacement and 1 emission in lifecycle	CALCM
Detergent	23 replacements in lifecycle	CALCM

3.1.11 End-of-Life Stage

This stage includes processes such as the disassembly, collection, scrapping, residual energy detection, sorting, shredding, landfilling, and incineration of end-of-life vehicles.According to the data in CALCM[9][10][14][15], the carbon emission during the end-of-life stage of the ZEEKR 7GT is shown in Table 3- 13, and the energy consumption data are presented in Table 3- 14.

Table 3- 13 ZEEKR 7GT End-of-Life Stage - Carbon Emission

Stage	Carbon Emission	Unit	Data Source
End-of-Life Stage	153.27	$kgCO_2e$/vehicle	CALCM

Table 3- 14 ZEEKR 7GT End-of-Life Stage - Energy Consumption

Stage	Energy Consumption	Unit	Data Source
End-of-Life Stage	1230.55	MJ/vehicle	CALCM

4 Life Cycle Impact Assessment

The environmental impact categories addressed in this report are the product carbon footprint and primary energy consumption. Other environmental impact categories, such as acidification, eutrophication, and photochemical ozone formation, are not assessed in this study.

4.1 Environmental Impact Assessment Method

4.1.1 Carbon Footprint

This report adopts the IPCC[5] GWP 100a environmental impact assessment method. The evaluated product environmental impact categories include global warming, and the evaluated environmental impact categories, corresponding indicators, and units are shown in

Table 4-1. The GWP of GHGs is derived from the IPCC "Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change." We have considered all GHGs according to the IPCC. The impact of biogenic carbon has not been considered. This report does not take into account the effects of land use (change) .

Table 4-1 Environmental Impact Type Indicators and Units

Environmental Impact Type	Environmental Impact Indicator	Unit
Global Warming	GWP, Global Warming Potential	$kgCO_2e$

4.1.2 Primary Energy Consumption

This report adopts the Cumulative Energy Demand impact assessment method, evaluating one impact category: the cumulative energy demand of non-renewable fossil resources. The impact assessment method applied is the "Method to calculate Cumulative Energy Demand (CED)", which is based on the method published in ecoinvent version 2.0 and extended by PRE Consultants[19] for raw materials in the SimaPro 7 database; the method is based on higher heating values (HHV).The evaluated impact category and its corresponding indicator and unit are shown in Table 4-2.

Table 4-2 Environmental Impact Type Indicators and Units

Environmental Impact Type	Environmental Impact Indicator	Unit
Non-renewable, fossil	NRF, Non-renewable fossil	MJ

4.2 Environmental Impact Assessment Results

4.2.1 Product Carbon Footprint Calculation Results

Using the aforementioned research methods, the purpose and scope of this evaluation were determined. Based on inventory analysis and impact assessment, the carbon footprint of the ZEEKR 7GT vehicle was obtained. The result is presented in Table 4-3 for both vehicle-km in gCO2e/km

and for 240,000 km lifetime milage in $kgCO_2e$.

Table 4-3 ZEEKR 7GT Life Cycle Stage Emission Summary Table

Life Cycle Stage	Carbon Footprint (gCO_2e/km)	Carbon Footprint ($kgCO_2e$)
Material Acquisition and Processing Stage	63.35	15203.00
Vehicle Production Stage	1.26	303.01
Vehicle Transportation Stage	1.48	355.54
Use Stage	38.24	9179.28
End-of-Life Stage	0.64	153.27
Total	104.97	25194.10

4.2.2 Product Primary Energy Consumption Calculation Results

Using the aforementioned research methods, the purpose and scope of this evaluation were determined. Based on inventory analysis and impact assessment, the primary energy demand of the ZEEKR 7GT vehicle was obtained. The results are presented in Table 4-4, shown both as vehicle primary energy consumption per kilometer traveled (MJ/km) and as total primary energy consumption over a 240,000 km lifetime (MJ).

Table 4-4 ZEEKR 7GT Life Cycle Stage Primary Energy Consumption Summary Table

Life Cycle Stage	Primary Energy Consumption (MJ/km)	Primary Energy Consumption (MJ)
Material Acquisition and Processing Stage	0.532	127697.31
Vehicle Production Stage	0.017	4155.30
Vehicle Transportation Stage	0.019	4609.17
Use Stage	1.338	321165.60
End-of-Life Stage	0.005	1230.55
Total	1.912	458857.93

4.3 Interpretation Note

In accordance with ISO 14040[1]/44[2], the results of this Life Cycle Impact Assessment (LCIA) are relative expressions used for comparative analysis within the defined system boundaries. They do not predict actual impacts on endpoint categories (e.g., human health or ecosystem damage), threshold exceedances, safety margins, or risks.

5 Life Cycle Result Interpretation

5.1 Carbon Footprint

5.1.1 Identification of Key Issues

The proportion of GHG emissions in each stage of the ZEEKR 7GT vehicle's life cycle is shown in Figure 5-1. The carbon footprint is 104.97 gCO_2e/km, with the material acquisition and processing stage accounting for the highest emissions at 63.35 gCO_2e/km (60.4%), followed by the use stage at 38.24 gCO_2e/km (36.4%), vehicle transportation stage contributing at 1.48 gCO_2e/km (1.4%) , and the vehicle production stage contributing at 1.26 gCO_2e/km (1.2%) , and the End-of-life stage contributing the least at 0.64 gCO_2e/km (0.6%). Sections 5.1.2 to 5.1.6 will provide a detailed analysis of the GHG emissions in each stage of the ZEEKR 7GT's life cycle.

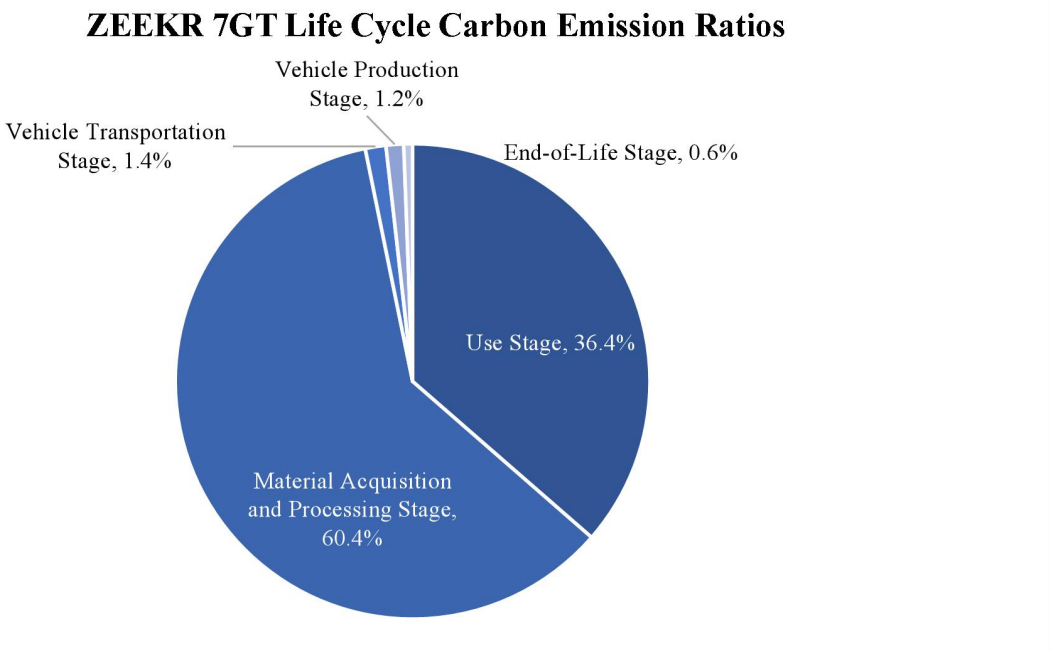


Figure 5-1 ZEEKR 7GT Life Cycle Carbon Emission Ratios

5.1.2 Material Acquisition and Processing Stage

The GHG emissions in ZEEKR 7GT's material acquisition and processing stage are 63.35

gCO_2e/km, accounting for 60.4%. of the total life cycle GHG emissions. This study divides the vehicle into components, Li-ion starting battery, power battery, liquids, tires, etc., with GHG emissions of each part shown in Figure 5-2. Component materials have the highest GHG emissions at 38.43 gCO_2e/km, accounting for 60.7% of the material acquisition and processing stage; followed by power batteries with 24.08 gCO_2e/km, accounting for 38.0%; tires with 0.62 gCO_2e/km, accounting for 1.0%; liquids and Li-ion starting battery emit 0.13 gCO_2e/km and 0.08 gCO_2e/km, respectively, accounting for approximately 0.2% and 0.1% of the material acquisition and processing stage emissions.

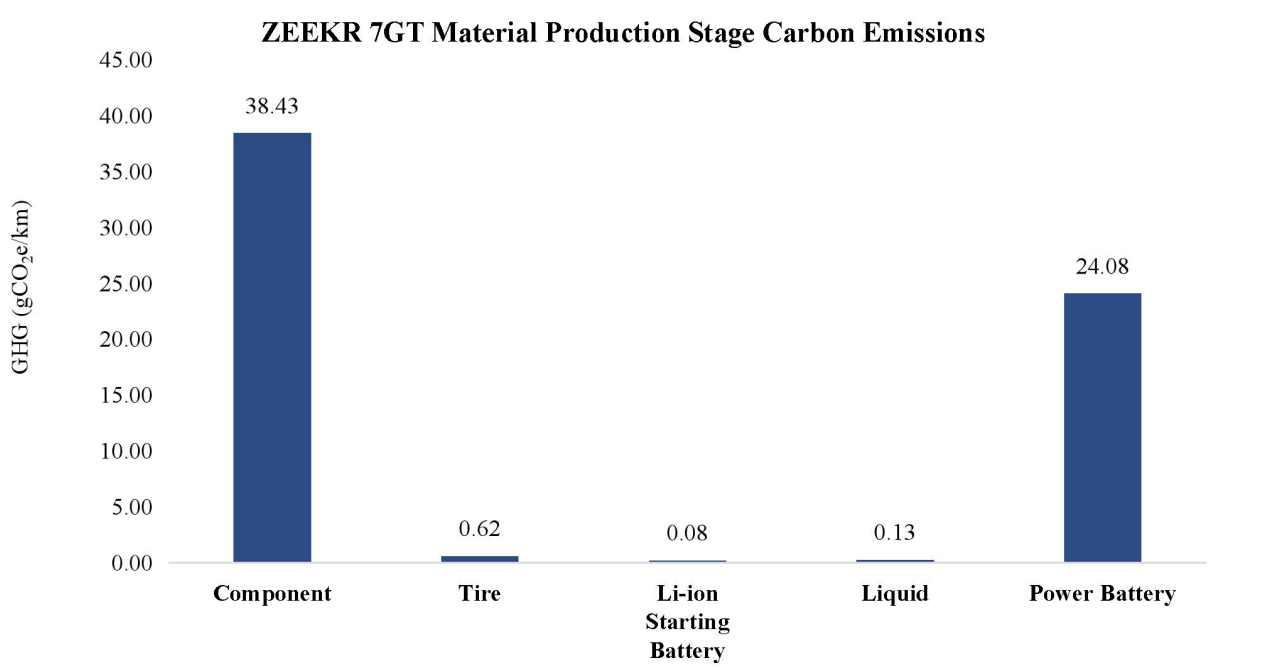


Figure 5-2 ZEEKR 7GT Material Acquisition and Processing Stage GHG emissions

5.1.3 Vehicle Production Stage

The GHG emissions from ZEEKR 7GT's vehicle production stage, calculated using enterprise-provided data, are 1.26 gCO_2e/km in Figure 5-3. Secondary energy use contributes the highest emissions at 0.83 gCO_2e/km (65.4% of the stage's total), with Purchased electricity accounting for 61.7% and Self-owned photovoltaic 3.7%. Primary energy Natural gas use follows with 0.42 gCO_2e/km (32.9%), Diesel 0.02 gCO_2e/km (1.6%), while direct CO_2 emissions are negligible at 0.001 gCO_2e/km (about 0.1%).

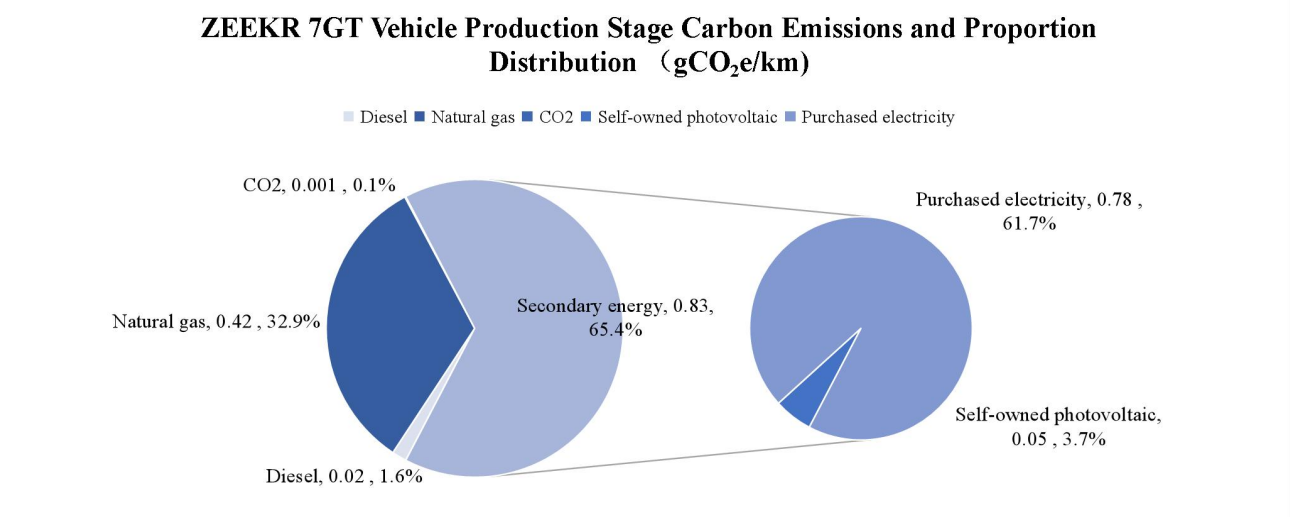


Figure 5-3 ZEEKR 7GT Vehicle Production Stage GHG emissions

5.1.4 Vehicle Transportation Stage

The carbon emissions for the Vehicle Transportation Stage of the ZEEKR 7GT are based on the default values from the CALCM[9][10][14][15] and the sea transport distance from Ningbo to Barcelona, which is 1.48 gCO_2e/km.

5.1.5 Use Stage

The GHG emissions in the vehicle use stage are 38.24 gCO_2e/km, accounting for 36.4%. As shown in Figure 5-4, GHG emissions from energy production (electricity) is the highest at 35.26 gCO_2e/km, accounting for 92.2% of GHG emissions in the use stage; tire replacement is 2.49 gCO_2e/km, accounting for 6.5%; liquid replacement is 0.49 gCO_2e/km, accounting for 1.3%; refrigerant emissions are 0.002 gCO_2e/km, accounting for about 0.005%; energy use (electricity) and Li-ion starting battery replacement is 0.

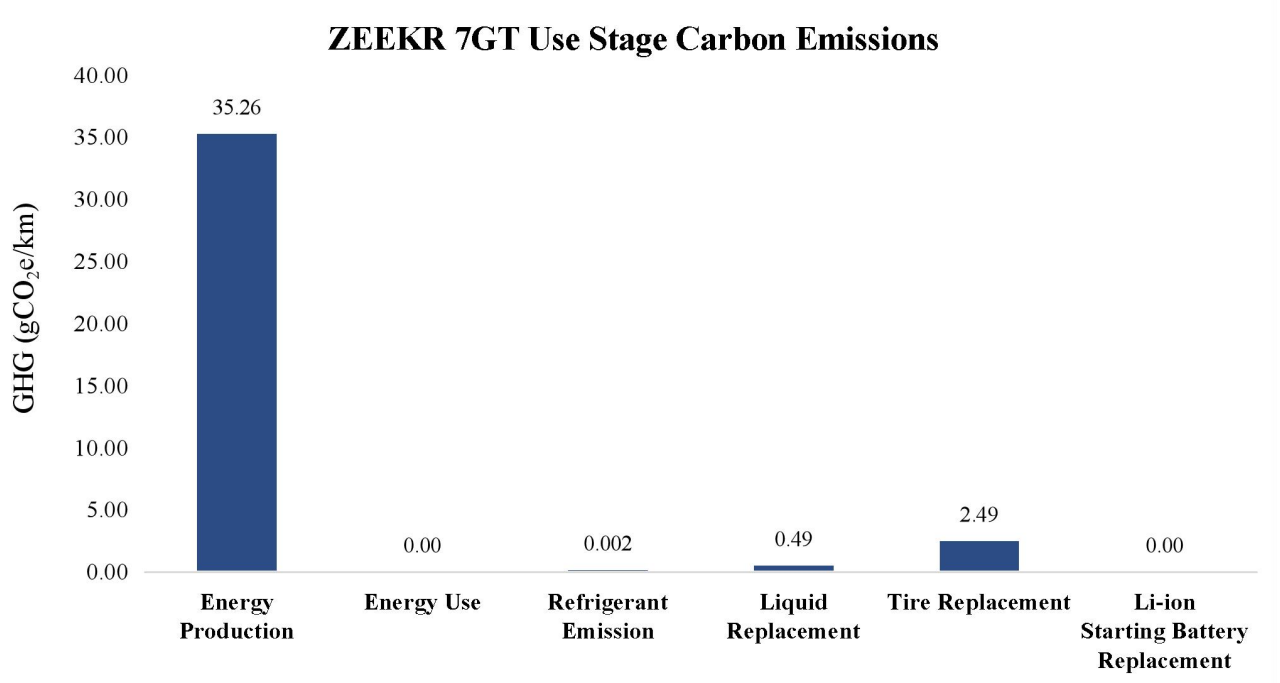


Figure 5- 4 ZEEKR 7GT Use Stage GHG emissions

5.1.6 End-of-Life Stage

The carbon emissions for the End-of-Life Stage of the ZEEKR 7GT are based on the default values from the CALCM[9][10][14][15], which is 0.64 gCO_2e/km.

5.2 Primary Energy Consumption

5.2.1 Identification of Key Issues

The primary energy consumption proportions at each stage of the life cycle of the ZEEKR 7GT model are shown in Figure 5- 5. The total energy consumption of the vehicle is 1.912 MJ/km, with the highest primary energy consumption occurring during the use phase, accounting for 1.338 MJ/km (70.0%). This is followed by the material acquisition and processing stage, which accounts for 0.532 MJ/km (27.8%); the vehicle transportation stage, which contributes 0.019 MJ/km (1.0%); the vehicle production stage, which accounts for 0.017 MJ/km (0.9%); while the end-of-life stage has the lowest primary energy consumption at 0.005 MJ/km (0.3%). Sections 6.2.2 to 6.2.6 will provide a detailed analysis of the primary energy consumption at each stage of the ZEEKR 7GT model's life cycle.

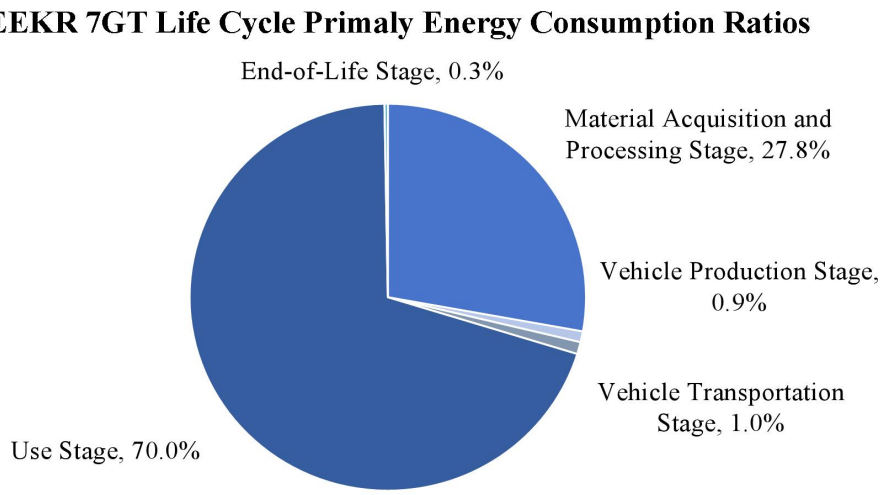


Figure 5- 5 ZEEKR 7GT Life Cycle Primary Energy Consumption Ratios

5.2.2 Material Acquisition and Processing Stage

The primary energy consumption of the ZEEKR 7GT model during the material-production stage is 0.532 MJ/km, accounting for 27.8% of the vehicle,s total life-cycle primary energy consumption. In this study, the whole vehicle is divided by component, Li-ion starting battery, power battery, fluids, tires, etc.—and the primary energy consumption of each part is shown in Figure 5- 6. Among these, the material production for components has the highest primary energy consumption at 0.296 MJ/km, representing 55.7% of the material-production stage's total. Next is the traction battery, with a primary energy consumption of 0.218 MJ/km (41.0%). Tires consume 0.014 MJ/km (2.6%), while fluids and the Li-ion starting battery consume 0.003 MJ/km and 0.001 MJ/km, corresponding to approximately 0.5% and 0.1% of the material-production stage's primary energy consumption, respectively.

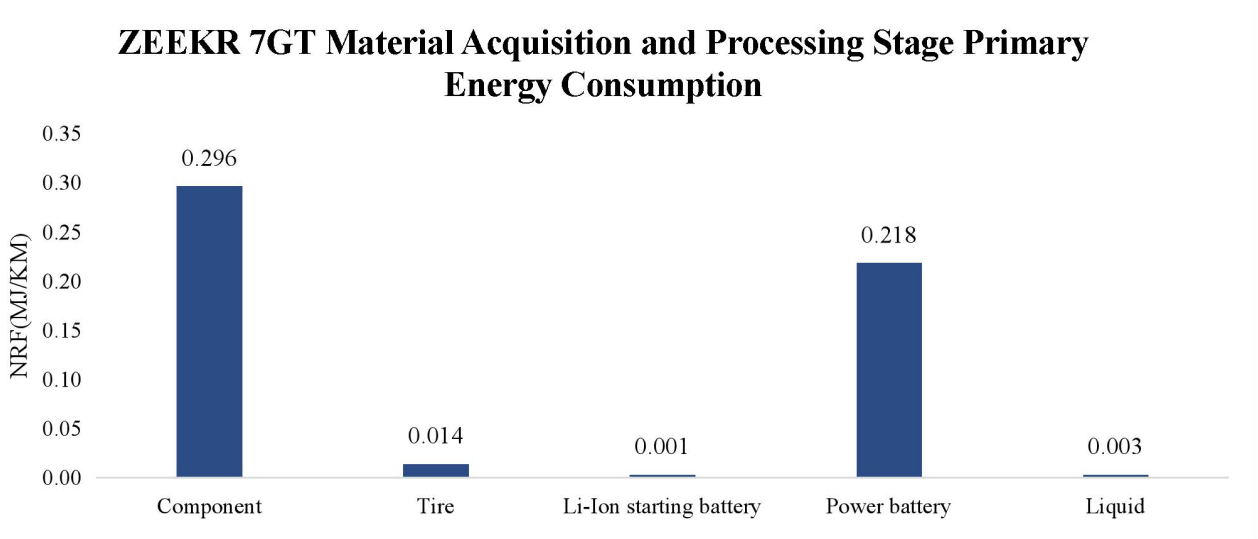


Figure 5- 6 ZEEKR 7GT Material Acquisition and Processing Stage Primary Energy Consumption

5.2.3 Vehicle Production Stage

The primary energy consumption of the ZEEKR 7GT during the vehicle production stage (based on enterprise-provided data) is 0.014 MJ/km, as shown in Figure 5- 7. The highest primary energy use is for secondary energy production, at 0.009 MJ/km (63.9% of this stage's total), of which purchased electricity accounts for 59.8%, steam for only 0.016%, self-owned photovoltaic for 0.6%, and purchased photovoltaic power for 3.5%. For primary energy, natural gas extraction consumes 0.005 MJ/km (36.1%), while diesel extraction consumes only 0.0000024 MJ/km (approximately 0.017%).

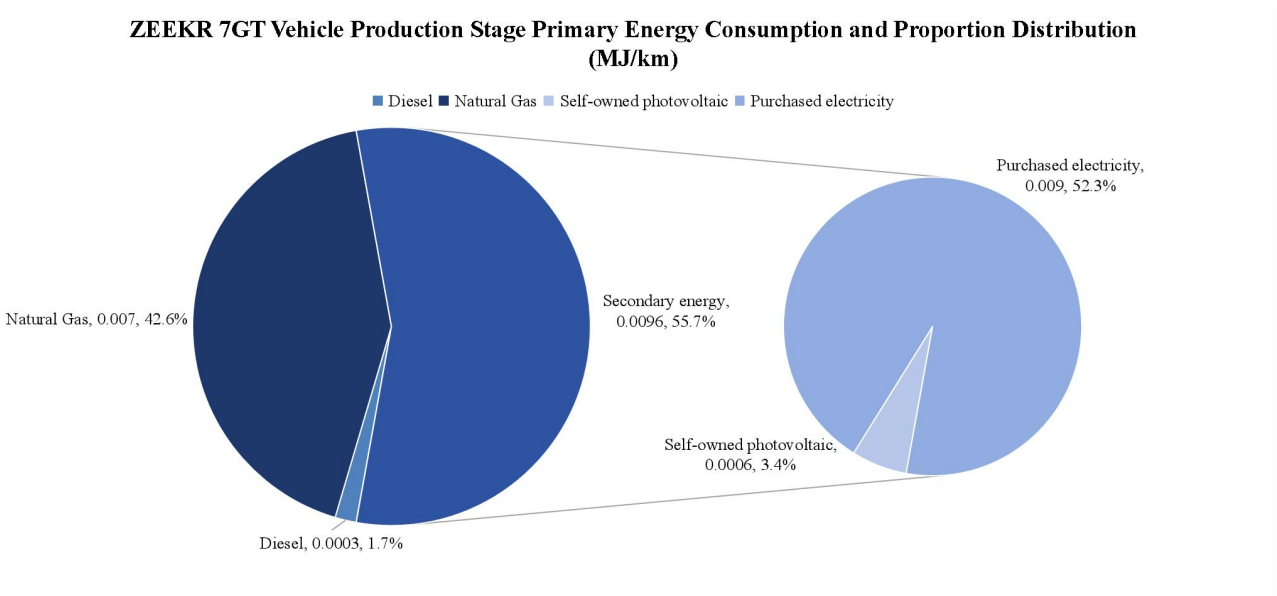


Figure 5- 7 ZEEKR 7GT Vehicle Production Stage Primary Energy Consumption

5.2.4 Vehicle Transportation Stage

The primary energy consumption for the vehicle transportation stage of the ZEEKR 7GT is based on the default values from CALCM[9][10][14][15] and the sea transport distance from Ningbo to Barcelona, with a consumption factor of 0.019 MJ/km.

5.2.5 Use Stage

The primary energy consumption in the vehicle use stage is 1.338 MJ/km, accounting for 70.0%. As shown in Figure 5- 8, electricity production has the highest primary energy consumption at 1.267 MJ/km, representing 94.7% of this stage; tire replacement is 0.056 MJ/km (4.2%); liquid replacement is 0.015 MJ/km (1.1%); and the Li-ion starting battery is not replaced during use.

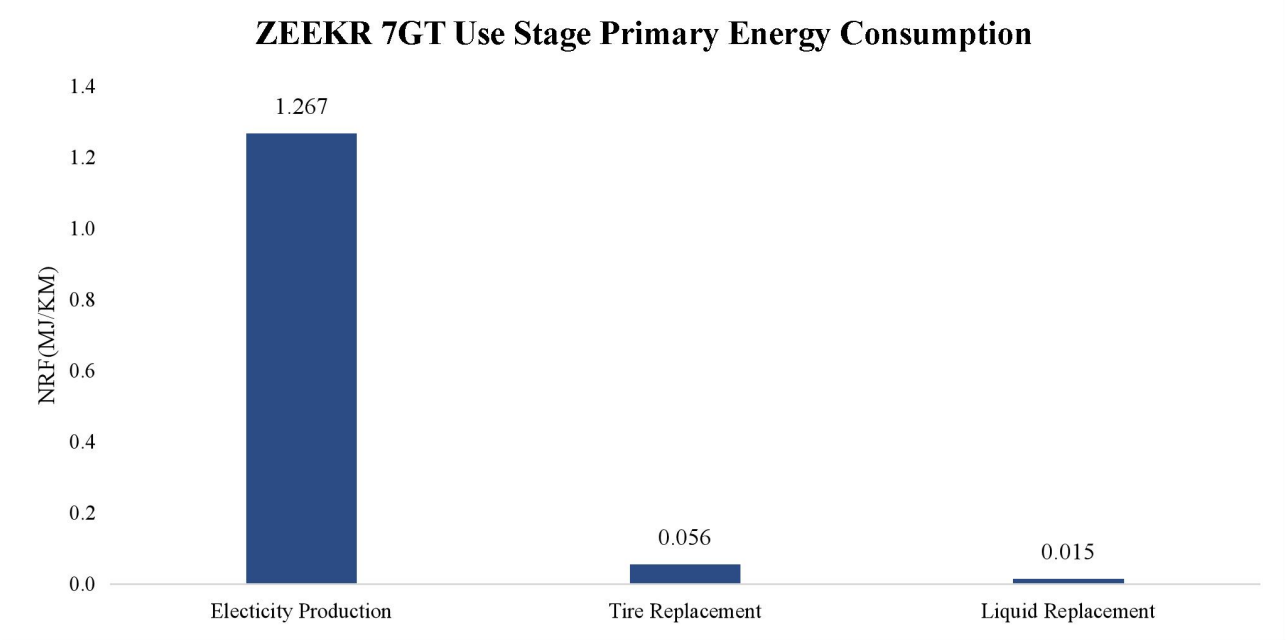


Figure 5- 8 ZEEKR 7GT Use Stage Primary Energy Consumption

5.2.6 End-of-Life Stage

The primary energy consumption for the end-of-life stage of the ZEEKR 7GT, based on the default values from the China Automotive Life-Cycle Assessment Model (CALCM)[9][10][14][15], is 0.005 MJ/km.

5.3 Sensitivity analysis

The use phase of a vehicle's life cycle is the predominant contributor to both carbon emissions and primary energy consumption, owing primarily to the electricity consumed during operation. To evaluate the impact of electricity use on these metrics, a one-factor sensitivity analysis was conducted by varying use-phase electricity consumption by ±10% and examining the resulting changes in their contributions to carbon emissions and primary energy consumption.

When use-phase electricity consumption increases by 10% from its baseline value (16.6 kWh/100 km), carbon emissions and primary energy consumption rise by 3.36% and 6.63%, respectively.

When this consumption rate decreases by 10% from its baseline value, carbon emissions and primary energy consumption decline by 3.36% and 6.63%, respectively.

These findings demonstrate that use-phase electricity consumption is the critical factor determining a vehicle's life-cycle carbon emissions and primary energy demand.

5.4 Integrity and Consistency Check

5.4.1 Integrity Check

The data inventory involved in this study is complete with respect to its research objectives, scope, system boundaries, and quality criteria, including:

– Coverage of life cycle stages such as material acquisition and processing stage, vehicle production stage, and use stage;

– Inclusion of all raw materials and energy inputs related to each process in the vehicle product life cycle.

The cut-off treatment of the above data has been applied in accordance with the cut-off criteria set out in Section 2.2.5.

5.4.2 Consistency Check

The purpose of the consistency check is to confirm whether the assumptions, methods, and data are consistent with the requirements of the objectives and scope. In this study, consistency of data provided by the enterprise has been verified through material balance, water balance, and other methods to ensure that the data remain consistent or within relevant error ranges.

It is also noted that 2025 production data are used for the 2026 model year vehicle, as no significant changes in manufacturing conditions are expected. In addition, the end-of-life stage is modeled via CALCM for China, which is used as a proxy for Europe due to the absence of region-specific data for the European market.

6 Conclusions, Recommendations and Limitations

6.1 Conclusions

Carbon Footprint: The total life cycle carbon footprint is 104.97 gCO_{2e}/km, with the material acquisition stage (63.35 gCO_{2e}/km, 60.4%) and use stage (38.24 gCO_{2e}/km, 36.4%) being the dominant contributors.

Primary Energy Consumption: Total primary energy consumption is 1.912 MJ/km, where the use stage accounts for 70.0% (1.338 MJ/km).

Key Drivers: Component materials (60.7% of material stage GHG emissions) and power batteries (38.0%) are critical in upstream phases. Electricity production dominate use stage impacts. These results provide a comparative baseline for environmental performance improvements within the defined system boundaries.

6.2 Recommendations

The following recommendations are proposed based on the results of this study:

Prioritize Carbon Footprint Reduction in the Material Stage

Expand the application of recycled materials: While ensuring structural strength, further increase the proportion of recycled content in steel and aluminum alloys. The ZEEKR 7GT already uses 38% recycled aluminum and 2% recycled plastics in certain components. It is recommended to extend this practice to more structural parts and interior/exterior trim components, and to set higher recycled content targets for subsequent vehicle models.

Drive down the carbon footprint of power batteries: It is recommended to collaborate with battery suppliers on LCA tracing, prioritizing low-carbon cathode materials (e.g., green synthesis processes for LFP) and recycled copper foil and recycled aluminum casings to reduce embodied carbon at the cell level.

Optimize the energy consumption during the use stage

Optimize overall vehicle energy consumption: Although electricity-related emissions dominate the use stage, the carbon emission factor of electricity is an external input factor with limited direct control by the company. It is recommended to continuously reduce the vehicle's electricity consumption per 100 km through lightweight design, low-drag aerodynamics, and efficient thermal management systems, thereby reducing electricity demand from the consumption side.

Reduce reliance on purchased electricity during the production stage

Expand on-site distributed photovoltaic capacity: Currently, self-generated photovoltaic electricity accounts for 39.8% of the plant's production-stage electricity sources. It is recommended to further increase rooftop PV coverage and integrate energy storage systems to improve the proportion of green electricity consumed on-site, thereby reducing dependence on grid electricity.

Promote natural gas substitution and waste heat recovery: Natural gas accounts for nearly one-third of production-stage carbon emissions. It is recommended to explore electric heating or hydrogen-based heating alternatives in high-heat-consuming processes such as painting workshops, while strengthening waste heat recovery to improve overall energy efficiency.

6.3 Limitations

This study is subject to the following constraints:

Data Availability: Background data relied on industry-average databases (CALCD[6]-[10]/Ecoinvent 错误!未找到引用源。). End-of-life impacts used generic regional models due to limited vehicle-specific recycling data. In addition, as carbon emission factors for specific grades of recycled aluminum and recycled plastics were not collected, database and industry research data were used as proxies.

Methodological Boundaries: Infrastructure impacts (e.g., manufacturing facilities, charging stations) were excluded per ISO 14067[3] cut-off rules. Biogenic carbon flows and land-use changes, among others, were not included.

Assumptions: Vehicle lifetime (240,000 km) and component replacement frequencies followed industry standards, which may vary by usage patterns. Furthermore, the energy consumption of the vehicle was estimated using the average energy consumption of all models produced at the plant during the annual period, which may introduce certain deviations from the actual energy consumption of the specific vehicle model.

7 References

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[2] ISO 14044:2006: Environmental management - Life cycle assessment - Requirements and guidelines.

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8 Appendix

8.1 Critical review



CERTIFICATE OF VERIFICATION

Critical Review

As an independent partner, DEKRA Assurance Services GmbH confirms

Geely Auto Group Co., Ltd.

the review of the Life Cycle Assessment (LCA) study commissioned by Geely Auto Group Co., Ltd. and prepared by CATARC Carbon (Beijing) Digital Technology Center Co., Ltd. in accordance with ISO14040:2006, ISO 14044:2006 and ISO 14071:2024 standards.

The verification was carried out based on the study and documents provided as well as discussions with the responsible persons of CATARC Carbon (Beijing) Digital Technology Center Co., Ltd.; the completeness and correctness of the data used is ensured by Geely Auto Group Co., Ltd.

The following was reviewed during the Critical Review:

- the LCA study is consistent with the relevant international standards (ISO 14040:2006 and ISO 14044:2006),
- the methods and inventory modelling used to carry out the LCA are scientifically and technically valid and conform with ISO 14044:2006,
- the data and model results used are appropriate and reasonable in relation to the goal of the study,
- the interpretations reflect the limitations identified and the goal of the study, and
- the study report is transparent and consistent.

The study fulfils the requirements of the standards ISO 14040/44.

The following document was reviewed by DEKRA Assurance Services GmbH:

- Life Cycle Assessment Report of GEELY ZEEKR 7GT (08/17/2026, SEALCA20260730001)

Further details are contained in the Review Statement. This certificate of verification does not constitute a certificate, but merely proof that the review has been carried out.

This certificate of verification 990902264 is only valid with the pertinent Critical Review report number P120342027_2 dated 09/02/2026 which provides a detailed assessment of the study.

The content of the study and its use remain the sole responsibility of Geely Auto Group Co., Ltd.

Stuttgart, 09/02/2026
DEKRA Assurance Services GmbH

Simona Gläser
Managing Director

ppa.
Peter Ruschin
Head of Sustainability Services

DEKRA Assurance Services GmbH – Handwerkstraße 15 – 70565 Stuttgart – Germany

8.2 LCI datasets

Table 8-1 Material datasets

Material category	Material type	Location	Name of LCI dataset	Type	LCI database
Steel	Steel and iron	CN	Steel	agg	CALCD 3.0[2]
Cast Iron	Steel and iron	CN	Cast Iron	agg	CALCD 3.0
Aluminum and Aluminum Alloys	Light Metals	CN	Cast Aluminum Alloy (ZL109)	agg	CALCD 3.0
	Light Metals	CN	Deformed Aluminum Alloy (6061)	agg	CALCD 3.0
	Light Metals	CN	Primary Aluminum	agg	CALCD 3.0
	Light Metals	CN	Forged Aluminum Alloy (6061)	agg	CALCD 3.0
Magnesium and Magnesium Alloys	Light Metals	CN	Casting of magnesium alloy (AM60)	agg	CALCD 3.0
	Light Metals	CN	Cast Magnesium Alloy (AZ31)	agg	CALCD 3.0
Copper and Copper Alloys	Heavy Metals	CN	Copper and Copper Alloys	agg	CALCD 3.0
Thermoplastics	Polymers	CN	Polypropylene (PP)	agg	CALCD 3.0
	Polymers	CN	Polyethylene (PE)	agg	CALCD 3.0
	Polymers	CN	Polycarbonate (PC)	agg	CALCD 3.0
	Polymers	CN	Polyvinyl Chloride (PVC)	agg	CALCD 3.0
Thermoplastic Elastomers	Polymers	GLO	Market for Polyurethane	agg	Ecoinvent 3.6
Duromers	Polymers	CN	Thermosetting Plastics	agg	CALCD 3.0
Rubber	Polymers	CN	Rubber	agg	CALCD 3.0
Textiles	Polymers	CN	Fabric	agg	CALCD 3.0

[2] China Automotive Carbon Digital Technology Center, 2025. China Automotive Life Cycle Database（CALCD 3.0）Instruction Manual.

Material category	Material type	Location	Name of LCI dataset	Type	LCI database
Coatings	Polymers	GLO	Market for Coating Powder	agg	Ecoinvent 3.6
Ceramics / Glass	Other Materials	CN	Glass	agg	CALCD 3.0
Adhesives / Sealants	Other Materials	Row	Acrylic Binder, without water, in 34% solution state	agg	Ecoinvent 3.6
Electrical / Electronic Equipment	Electronics	GLO	Market for Electronics, for control units	agg	Ecoinvent 3.6
Lead	Other Materials	CN	Lead	agg	CALCD 3.0
Sulfuric Acid	Other Materials	CN	Sulfuric acid	agg	CALCD 3.0
Fiberglass	Other Materials	CN	Fiberglass	agg	CALCD 3.0
Lithium Iron Phosphate (LFP)	Other Materials	CN	Lithium Iron Phosphate ($LiFePO_4$)	agg	CALCD 3.0
Graphite	Other Materials	CN	Graphite	agg	CALCD 3.0
Electrolyte: Lithium hexafluorophosphate	Other Materials	CN	Lithium Hexafluorophosphate	agg	CALCD 3.0
Lubricants Oil	Fluids	GLO	Market for Lubricants Oil	agg	Ecoinvent 3.6
Brake Fluid	Fluids	GLO	Market for Lubricants Oil	agg	Ecoinvent 3.6
Coolants	Fluids	GLO	Market for Ethylene glycol	agg	Ecoinvent 3.6
Refrigerants	Fluids	CN	Refrigerants	agg	CALCD 3.0
Detergent	Fluids	**CN**	Detergent	agg	CALCD 3.0

Table 8-2 Components Containing Recycled Materials

Part name	Material Category	Material Name	Material Grade	Proportion of recycled materials
19-inch wheel rim	Metallic	Cast aluminum alloy	A356.2	30%
Left front steering knuckle	Metallic	Cast aluminum alloy	A356.2	30%
Right front steering knuckle	Metallic	Cast aluminum alloy	A356.2	30%
Left rear steering knuckle	Metallic	Cast aluminum alloy	A356.2	30%
Right rear steering knuckle	Metallic	Cast aluminum alloy	A356.2	30%
Rear e-drive system	Metallic	Aluminum alloy	ADC12	85%
High-voltage battery housing	Metallic	Aluminum alloy	6061	25%
High-voltage and low-voltage charging system assembly	Metallic	Aluminum alloy	ADC12	20%
Left sill beam	Metallic	Aluminum extrusion	6082-T6	32%
Left rear sill section	Metallic	Aluminum extrusion	6082-T6	32%
Left front sill inner panel reinforcement plate	Metallic	Aluminum extrusion	6082-T6	32%
Left front sill inner panel front reinforcement plate	Metallic	Aluminum extrusion	6082-T6	32%
Left side sill inner panel support reinforcement plate	Metallic	Aluminum extrusion	6082-T6	32%
Right sill beam	Metallic	Aluminum extrusion	6082-T6	32%
Right rear sill section	Metallic	Aluminum extrusion	6082-T6	32%
Right front sill inner panel reinforcement plate	Metallic	Aluminum extrusion	6082-T6	32%
Right front sill inner panel front reinforcement plate	Metallic	Aluminum extrusion	6082-T6	32%
Right side sill inner panel support reinforcement plate	Metallic	Aluminum extrusion	6082-T6	32%
Left rear longitudinal beam	Metallic	Aluminum extrusion	6063-T6	40%
Right rear longitudinal beam	Metallic	Aluminum extrusion	6063-T6	40%

Front bumper beam	Metallic	Aluminum extrusion	7003-T6	32%
Nut tube	Metallic	Aluminum extrusion	6063-T6	32%
Front cross member mounting sleeve	Metallic	Aluminum extrusion	6063-T6	32%
Subframe left front mounting plate	Metallic	Aluminum extrusion	6063-T6	32%
Front subframe right rear mounting plate assembly	Metallic	Aluminum extrusion	6063-T6	32%
Left front longitudinal beam middle-front section	Metallic	Aluminum extrusion	6063-T7	32%
Right front longitudinal beam middle-front section	Metallic	Aluminum extrusion	6063-T7	32%
One-piece rear body structure	Metallic	Cast aluminum alloy	HA1-E	50%
Front bumper upper body	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Front bumper lower body	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Rear bumper lower body	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Front license plate base	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Rear bumper upper body	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Rear bumper lower decorative trim	Non-metallic	Plastics	PP+EPDM-TD20 (8220M HF(B))	30%
Right side sill cover assembly	Non-metallic	Plastics	PP+EPDM-TD20 (8220M HF(B))	30%
Left side sill cover assembly	Non-metallic	Plastics	PP+EPDM-TD20 (8220M HF(B))	30%

Front bumper left air duct assembly	Non-metallic	Plastics	PP+EPDM-TD20 (RETPP-03)	30%
Front bumper right air duct assembly	Non-metallic	Plastics	PP+EPDM-TD20 (RETPP-03)	30%
Millimeter wave radar left front mounting bracket	Non-metallic	Plastics	PP+EPDM-TD20 (RETPP-03)	30%
Millimeter wave radar right front mounting bracket	Non-metallic	Plastics	PP+EPDM-TD20 (RETPP-03)	30%
Front bumper left sensor bracket	Non-metallic	Plastics	PP+EPDM-TD20 (RETPP-03)	30%
Front bumper right sensor bracket	Non-metallic	Plastics	PP+EPDM-TD20 (RETPP-03)	30%
Front bumper left outer lower welding bracket	Non-metallic	Plastics	PP+EPDM-TD20 (RETPP-03)	30%
Front bumper right outer lower welding bracket	Non-metallic	Plastics	PP+EPDM-TD20 (RETPP-03)	30%
Rear bumper left inner radar bracket	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Rear bumper left center radar bracket	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Rear bumper right inner radar bracket	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Rear bumper right center radar bracket	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%

Left rear fog lamp welding bracket	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Right rear fog lamp welding bracket	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Rear bumper left decorative trim	Non-metallic	Plastics	PP+EPDM-TD20 (8220M HF(B))	30%
Rear bumper right decorative trim	Non-metallic	Plastics	PP+EPDM-TD20 (8220M HF(B))	30%
Rear bumper underbody shield	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Rear drain channel upper cover panel	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Rear bumper right outer radar bracket	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Rear bumper left outer radar bracket	Non-metallic	Plastics	PP+EPDM-TD20 (ABP-2030 EF)	30%
Rear engine compartment trim panel	Non-metallic	Plastics	PP+EPDM-TD20 (RETPP-02)	30%
Front engine compartment trim panel	Non-metallic	Plastics	PP+EPDM-TD20 (RETPP-02)	30%
Left rear front engine compartment trim panel	Non-metallic	Plastics	PP+EPDM-TD20 (RETPP-02)	30%
Right rear front engine compartment trim panel	Non-metallic	Plastics	PP+EPDM-TD20 (RETPP-02)	30%

Table 8-3 Production stage electricity mix datasets

Source of electricity generation	Percentage used for Production, %	Location	Name of LCI dataset	Type	LCI database
Coal	62	Liaoning, CN	Electricity from coal	agg	CALCD 3.0
Nuclear	20	Liaoning, CN	Electricity from nuclear	agg	CALCD 3.0
Wind	11	Liaoning, CN	Electricity from wind	agg	CALCD 3.0
Hydro	4	Liaoning, CN	Electricity from hydro	agg	CALCD 3.0
Solar	3	Liaoning, CN	Electricity from solar	agg	CALCD 3.0

Table 8-4 Datasets for maritime transportation

Process	Material type	Location	Name of LCI dataset	Type	LCI database
OBL Sea	Steel and iron	GLO	27.500 dwt payload capacity	agg	EF 3.1

Table 8-5 Use stage share of electricity mix in Europe 27 (EU27)

Source of electricity generation	2024	2030	2050
Coal	11.6%	6.7%	0.7%
Oil	0.7%	0.2%	0.1%
Natural Gas	16.8%	14.2%	9.6%
Nuclear	22.1%	16.8%	14.6%
Biomass	6.2%	5.5%	8.3%
Hydro	12.4%	11.8%	9.6%
Wind	21.6%	31.7%	40.9%
PV	8.3%	12.7%	16.0%
Waste	0.3%	0.2%	0.3%
Other	0.0%	0.0%	0.0%
SUM	**100%**	**100%**	**100%**

Table 8-6 Background data for the supply of electricity to the charging station in Europe 27 (EU27) (g CO2e/kWh)[3]

Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	Average
EU27	295.1	280.5	265.9	251.3	236.7	222.1	207.5	200.9	194.4	187.8	181.2	174.6	168.0	161.5	154.9	148.3	208.2

[3] Jungmeier et al. 2024: G. Jungmeier, A. Meltzer, M. Beermann: Estimated Greenhouse Gas Emissions and Primary Energy Consumption in the Life Cycle Assessment of Passenger Vehicles, JOANNEUM REPORT, Graz, July 2024
IEA 2023 iea.org/data-and-statistics
Ricardo 2023: Ricardo vehicle LCA modelling, 2023; some of this data is not used/published in a specific source. Information for EU27 and selection of the countries was used in Ricardo´s work published in March 2023, here: Research for TRAN committee: Environmental challenges through the life cycle of battery electric vehicles | Think Tank | European Parliament; data provided by Ricardo (UK) for free on the condition that it is exclusively used for the Green NCAP projects.