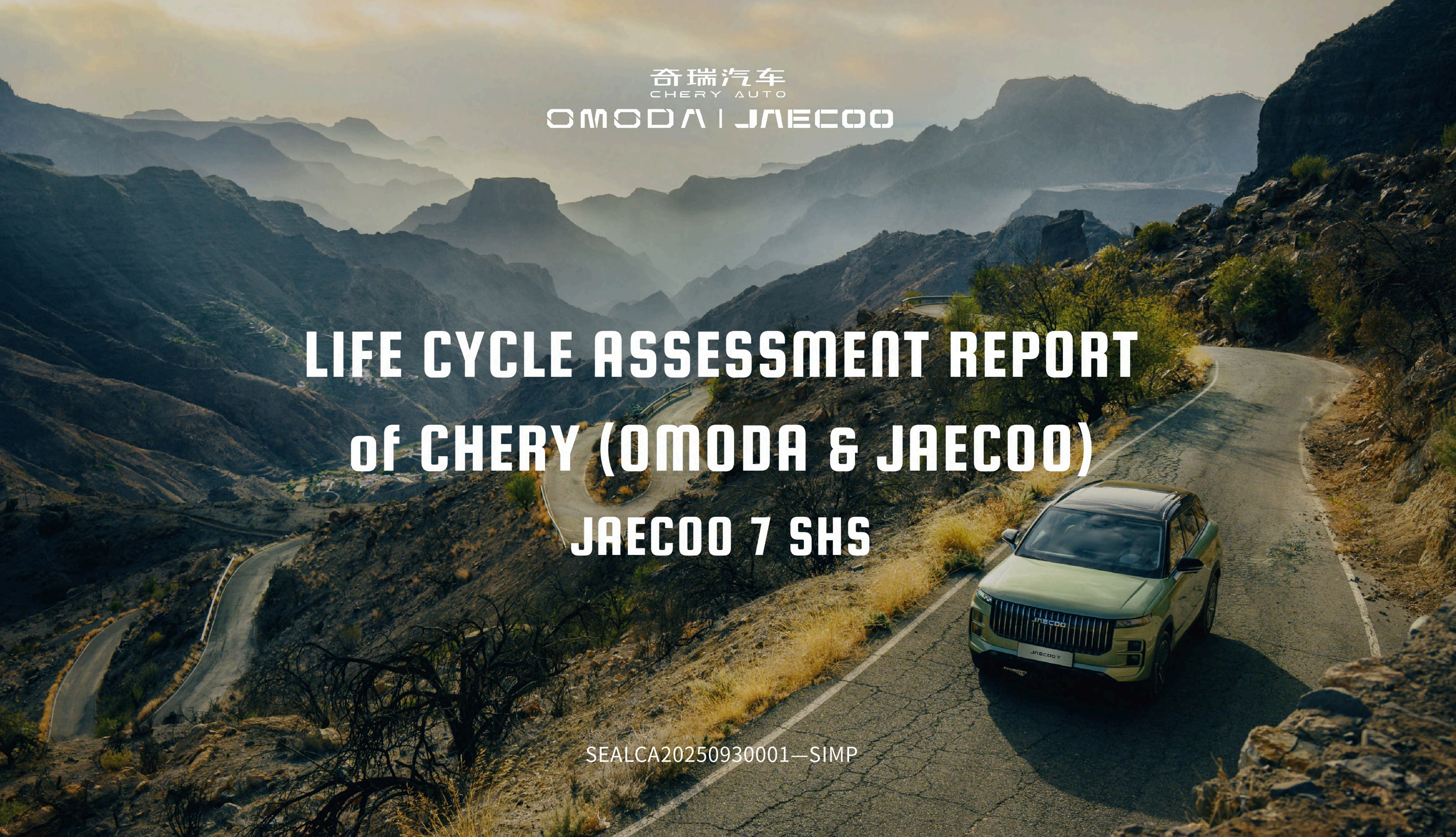
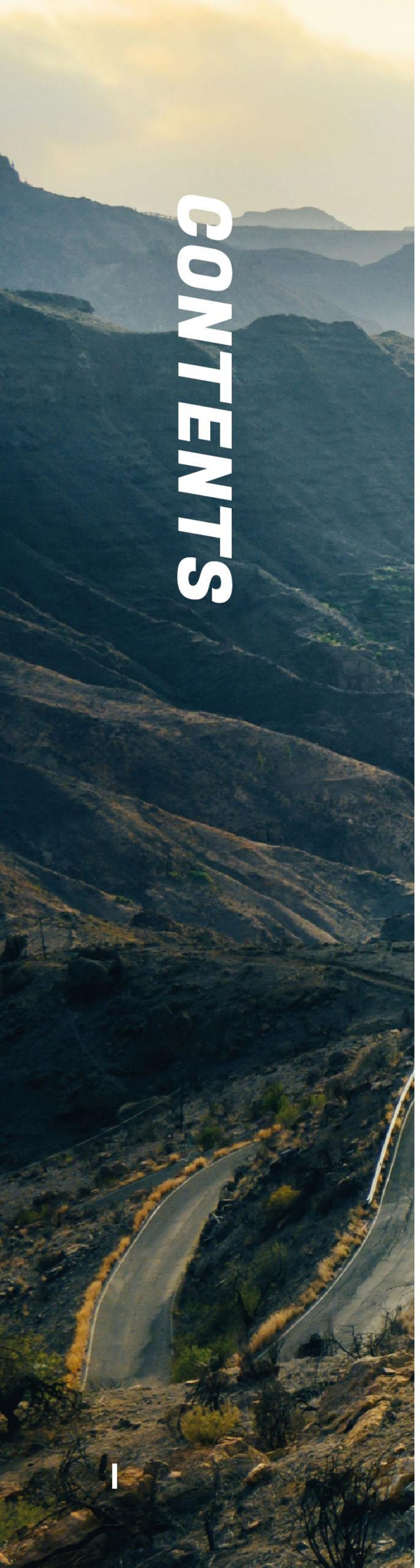


奇瑞汽车
CHERY AUTO
OMODA | JAECOO

LIFE CYCLE ASSESSMENT REPORT of CHERY (OMODA & JAECOO)

JAECOO 7 SHS

SEALCA20250930001—SIMP



CONTENTS

Contents I
Abbreviation IV
Executive Summary V
- **Overview** 01
  - About Chery, OMODA and JAECOO 01
  - About the Product 01
  - Relevant standards 01
- **Methodology** 01
  - Goal of the Study 01
  - Scope of the Study 01
    - Functional Unit 01
    - System Boundaries 01
    - Main Assumptions and Exclusions 02
    - Allocation 03
    - Cut-off Criteria 03
  - Critical Review 03
- **Life Cycle Inventory Analysis** 03
  - Data Sources and Quality 04
    - Time-related Coverage 04
    - Geographical Coverage 04
    - Technology Coverage 04
    - Data sources 04
    - Material Acquisition and Processing Stage 05
    - Vehicle Production Stage 08
    - Vehicle Transportation Stage 08
    - Use Stage 08
    - End-of-Life Stage 09
- **Life Cycle Impact Assessment** 10
  - Environmental Impact Assessment Method 10
    - Carbon Footprint 10
    - Primary Energy Consumption 10
  - Environmental Impact Assessment Results 10
    - Product Carbon Footprint Calculation Results 10
    - Product Primary Energy Consumption Calculation Results 10
  - Interpretation Note 11
- **Life Cycle Result Interpretation** 11
  - Carbon Footprint 11
    - Identification of Key Issues 11
    - Material Acquisition and Processing Stage 11
    - Vehicle Production Stage 11
    - Vehicle Transportation Stage 12
    - Use Stage 12
    - End-of-Life Stage 12
  - Primary Energy Consumption 12
    - Identification of Key Issues 12
    - Material Acquisition and Processing Stage 13
    - Vehicle Production Stage 13
    - Vehicle Transportation Stage 13
    - Use Stage 13
    - End-of-Life Stage 13
  - Sensitivity analysis 13
  - Integrity and Consistency Check 13
    - Integrity Check 14
    - Consistency Check 14
- **Conclusions, Recommendations and Limitations** 15
  - Conclusions 15
  - Recommendations 15
  - Limitations 16
- **References** 17
- **Appendix 1 – 2** 18

DISCLAIMER

Version Identification:

This report is a simplified version of the JAECOO 7 SHS, bearing the version number SEALCA20250930001-SIMP. It differs from the original verified report version SEALCA20250930001 , which was critically reviewed by DEKRA.

Nature of the Document:

This document is a derivative work based on the original DEKRA-verified report (Version No.: SEALCA20250930001) and is not the original critically reviewed report. It is intended for informational distribution and does not constitute a legally valid certification document.

Content Modification:

To protect sensitive information, certain technical data (e.g., specific figures within tables) in this simplified version have been greyed out/redacted. For complete, unredacted data and detailed test information, reference must be made to the original report.

Access to Original Report:

The original verified report, including the DEKRA Critical Review Statement and Certificate, is archived with DEKRA and Chery. Third parties requesting access to the original report should contact Chery to obtain permission.

Liability:

The content of this document is compiled from the original verified report. However, the issuer assumes no liability for any direct or indirect consequences arising from the use of this simplified version. All technical data and certifications are subject to the original report.

LIST OF TABLES AND FIGURES

Table 1-1 Basic parameters of JAECOO 7 SHS 01
Table 2-1 JAECOO 7 SHS Vehicle Life-Cycle System Boundaries 02
Table 3-1 Data Sources and Data Quality 04
Table 3-2 JAECOO 7 SHS Material Acquisition and Processing Stage - Bill of Component Material Inputs 05
Table 3-3 JAECOO 7 SHS Material Acquisition and Processing Stage - Bill of Tire Material Inputs 06
Table 3-4 JAECOO 7 SHS Material Acquisition and Processing Stage - Bill of Lead-acid Battery Material Inputs 06
Table 3-5 JAECOO 7 SHS Material Acquisition and Processing Stage - Bill of Power Battery Material Inputs 07
Table 3-6 JAECOO 7 SHS Material Acquisition and Processing Stage - Bill of Liquid Material Inputs 07
Table 3-7 Default Value of the Material Use Factor 07
Table 3-8 JAECOO 7 SHS Vehicle Production Stage - Bill of Fuel/Energy Consumption 08
Table 3-9 JAECOO 7 SHS Vehicle Production Stage - Bill of Direct Greenhouse Gas Emission 08
Table 3-10 JAECOO 7 SHS Vehicle Transportation Stage - Bill of Transport Distance 08
Table 3-11 JAECOO 7 SHS Use Stage - Bill of JAECOO 7 SHS Electricity Consumption 09
Table 3-12 JAECOO 7 SHS Use Stage - Component Replacement/Emission Frequency 09
Table 3-13 JAECOO 7 SHS End-of-Life Stage - Carbon Emission 09
Table 3-14 JAECOO 7 SHS End-of-Life Stage - Energy Consumption 09
Table 4-1 Environmental Impact Type Indicators and Units 10
Table 4-2 Environmental Impact Type Indicators and Units 10
Table 4-3 JAECOO 7 SHS Life Cycle Stage Emission Summary Table 10
Table 4-4 JAECOO 7 SHS Life Cycle Stage Primary Energy Consumption Summary Table 10
Figure 1-1 Picture of JAECOO 7 SHS 01
Figure 5-1 JAECOO 7 SHS Life Cycle Carbon Emission Ratios 11
Figure 5-2 JAECOO 7 SHS Material Acquisition and Processing Stage GHG emissions 11
Figure 5-3 JAECOO 7 SHS Vehicle Production Stage GHG emissions 12
Figure 5-4 JAECOO 7 SHS Use Stage GHG emissions 12
Figure 5-5 JAECOO 7 SHS Life Cycle Primary Energy Consumption Ratios 13
Figure 5-6 JAECOO7 SHS Material Acquisition and Processing Stage Primary Energy Consumption 13
Figure 5-7 JAECOO 7 SHS Vehicle Production Stage Primary Energy Consumption 13
Figure 5-8 JAECOO 7 SHS Use Stage Primary Energy Consumption 13

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.

CICES: China Industrial Carbon Emissions Information System

CKD: Completely Knocked Down

EoL: End-of-Life

GHGs: Greenhouse Gases

GWP: Global Warming Potential

NRF: Non-Renewable Fossil

IPCC: Intergovernmental Panel on Climate Change

LCA: Life Cycle 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

At Chery, we have long embraced the development philosophy of “ecological priority and green development”. We dedicate ourselves to creating low-carbon products, practising green operations, promoting the circular economy, and exploring eco-friendly and nature-positive business practices. Building green and low-carbon mobility modes is at the heart of our mission to foster harmonious coexistence between humanity and nature and to protect our planet.

We continue to accelerate our efforts in New Energy Vehicles (NEVs), Intelligent Connected Vehicles (ICVs), shared mobility, platform-based services, and ecological solutions. We have established a global R&D system with six centres across Europe, South America, Shanghai, and our headquarters in Wuhu, and we have built a diverse brand portfolio including CHERY, EXEED, JETOUR, iCAR, and OMODA/JAECOO.

The subject of this report—the JAECOO 7 SHS plug-in hybrid SUV (PHEV)—is manufactured in Dalian, China and exported to Europe, where it is sold and used by European consumers. By conducting this Life-Cycle Assessment (LCA), we aim to share a transparent, science-based understanding of the vehicle’ s carbon footprint and primary energy consumption across its entire life cycle—from material acquisition and processing, production in China, transport to Europe, use in the European market, through to end-of-life treatment. The study was carried out in compliance with ISO 14040/44 and the Sino-European Automotive Carbon Footprint Mutual Recognition (SEA LCA) Guidelines which are based on ISO 14067, and underwent independent third-party critical review. We emphasise that its findings are not directly comparable with those of other studies unless the same methodology, system boundaries, and assumptions are applied.

The study adopts a conservative approach to avoid underestimating impacts and is based on a 16-year, 240,000 km lifetime using the WLTC driving cycle. Primary data were collected at Chery’ s Dalian production plant and supplemented by worldwide recognized databases (CALCD, Ecoinvent, Green NCAP). The assessment was independently reviewed by external experts to ensure compliance with international standards.

This disclosure reflects our commitment to ecological innovation, global transparency, and stakeholder engagement, offering customers, investors, employees, partners, and policymakers insight into the environmental performance of our products.

KEY FINDINGS

Total Carbon Footprint

The life-cycle carbon footprint of the JAECOO 7 SHS is 120.40 g CO_2e/km (28,895.86 kg CO_2e over 240,000 km).

- The use stage in Europe is the largest contributor at 63.6% (76.57 g CO_2e/km), mainly from fuel and electricity production and consumption.
- The material acquisition and processing stage contributes 33.9% (40.79 g CO_2e/km), dominated by steel and aluminium components (74.5% of this stage' s emissions) and the LFP power battery (23.1%).
- The production in Dalian (0.9%), shipping to Europe (1.1%), and end-of-life treatment in Europe (0.5%) contribute marginally.

Primary Energy Consumption

The total life-cycle primary energy consumption is 2.275 MJ/km (≈ 545,780 MJ over 240,000 km).

- The use stage in Europe accounts for 80.7% (1.836 MJ/km), primarily from electricity generation (63.2% of use-stage energy) and gasoline production (28.6%).
- The material stage contributes 17.7% (0.403 MJ/km), while production, shipping, and end-of-life together account for less than 2%.

Key Impact Drivers

- Energy production and consumption during the use stage are the leading drivers of both carbon and energy impacts.
- In upstream phases, steel, aluminium alloys, and the LFP battery are the most significant contributors.
- 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 fuel and electricity consumption leads to a ±5.95% change in the life-cycle carbon footprint and a ±7.41% change in primary energy consumption.
- A gasoline-only consumption scenario (6 L/100 km) increases carbon emissions by 94.9% and primary energy use by 34.9%.
- A electric-only consumption scenario (21.5 kWh/100 km) reduces energy use by 1.9% and reduces carbon emissions by 21.5% under the current European electricity mix.

Implications and Recommendations

- **Accelerate Renewable-Energy Charging**
  Expand partnerships and infrastructure for low-carbon electricity in Europe, reducing the largest contributor—use-phase emissions.
- **Enhance Vehicle Efficiency**
  Continue to optimise powertrain and hybrid energy-management strategies to further reduce gasoline consumption and improve energy efficiency.
- **Advance Low-Carbon Materials**
  Increase the share of recycled steel and aluminium, and collaborate with suppliers to improve battery manufacturing processes, thus lowering embodied energy and carbon.
- **Scale Renewable Energy in Production**
  Continue to increase on-site photovoltaic capacity and explore wind or other renewable sources at our Dalian production facility to reduce production-stage carbon intensity.

RESEARCH TEAM

Conductors:

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

Guigen Wu, Chery Automobile Co., Ltd.

Changqing Wei, Chery Automobile Co., Ltd.

Suhua Long, Chery Automobile Co., Ltd.

Tao Sun, Chery Automobile Co., Ltd.

Huiming Zhang, Chery Automobile Co., Ltd.

Reviewers:

Dr. Nadine Rötzer, Team Leader Product Sustainability, DEKRA Assurance Services GmbH

Florian Bodrogi, Expert Product Sustainability, DEKRA Assurance Services GmbH

CONTACTS

sunxin@catarc.ac.cn

zhaotianning@catarc.ac.cn

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

OVERVIEW

1.1 About Chery, OMODA and JAECOO

Chery Automobile Co., Ltd. was founded in 1997 with its headquarters in Wuhu, Anhui Province, China. Relying on the constant pursuit of technological innovation, Chery has become the first passenger vehicle enterprise in China to master the core technology of engine, gearbox, chassis, platform and new energy, and also the first one in China to export vehicle, CKD parts, engine and vehicle manufacturing technology and equipment to overseas market.

Chery has always focused on developing domestic and international markets. Chery has continuously deepened its globalization through the implementation of product strategy, localization strategy and talent strategy. After more than 20 years of development, Chery' s sales and services network covers more than 100 countries and regions and has won the trust of 15 million consumers worldwide.

OMODA and JAECOO are sub-brands of Chery, mainly focusing on the overseas market. On February 22, 2024, at the iconic Cibeles Palace in Madrid, Spain, Chery Group held a brand and product launch event for OMODA and JAECOO, marking their official entry into the European market.

1.2 About the Product

This report takes JAECOO 7 SHS 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 JAECOO 7 SHS

Table 1-1 Basic parameters of JAECOO 7 SHS

Item	Item
Vehicle Name	JAECOO 7 SHS
Vehicle Model	SQR6450CHEVT1EJ
Vehicle Class	A
Length (mm)	4500
Width (mm)	1865
Height (mm)	1680
Wheelbase (mm)	2672
Curb Weight (kg)	1775
Gross Vehicle Weight (kg)	2192
Power Type	PHEV
Fuel Consumption (L/100km)(WLTC)	1.27
Energy Consumption (kWh/100km)(WLTC)	15.2
Power Battery Type	LFP
Power Battery Weight (kg)	175
Power Battery Energy (kWh)	18.3
EV Range (km)(WLTC)	93

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].

METHODOLOGY

2.1 Goal of the Study

This study takes CHERY (OMODA & JAECOO)'s JAECOO 7 SHS 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.

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

2.2 Scope of the Study

Functional Unit

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

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 JAECOO 7 SHS 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 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.
	Lead-acid Battery Manufacturers (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, tires, fluids, lead-acid batteries, and power batteries.
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 fuels (including electricity, gasoline, diesel, etc.).
	Fuel Use (E_2)	Use phase of fuels (including electricity, gasoline, diesel, etc.).
	Component Replacement (E_3)	Material acquisition and processing processes related to replacement, maintenance, and repair of components (vehicle components, tires, fluids, and lead-acid batteries).
	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.

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 impact from unknown data.

In vehicle production stage, there is no emission factor for self-generated photovoltaic (PV) power, so the factor for purchased PV electricity was used as a substitute.

The use phase considers 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 [12]. The energy use of the vehicle corresponds to driving according to the WLTP driving cycle. The lifetime mileage of the vehicle is 240,000 km. The battery is assumed to last the full

Contents I
Abbreviation IV
Executive Summary V

Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

lifetime mileage of the vehicle.

In addition, the use phase accounts for tyre, lead-acid battery and fluid replacements as well as refrigerant leakage events.

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 vehicle production stage, the plant produced multiple models during the reporting period; therefore, the carbon emissions and primary-energy consumption attributable to the JAECOO 7 SHS must be allocated. Allocation is performed on a physical basis, using the number of JAECOO 7 SHS produced and the total number of vehicles produced by the plant during the same period as the allocation factors.

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.

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, lithium-ion traction batteries, lead-acid batteries, tires, 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 "Others," "Electrical/Electronic Equipment," and "Other Mixtures" were omitted.

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.

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.

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 Dr. Nadine Rötzer and Mr. Florian Bodrogi of DEKRA Assurance Services GmbH.

LIFE CYCLE INVENTORY ANALYSIS

The life-cycle material data of JAECOO 7 SHS are provided by Chery, 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[12] and Green NCAP[13].

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)[14][15], a localized LCA model also developed by CATARC. CALCM[14][15] 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[14][15] provides standardized methodological support for environmental performance evaluations and carbon management strategies throughout the automotive product life cycle.

3.1 Data Sources and Quality

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 JAECOO 7 SHS production stage, the statistical time scope of fuel / energy consumption is from January 1, 2024 to December 30, 2024.

Geographical Coverage

JAECOO 7 SHS is produced in Chery' s factory in Dalian, Liaoning Province, China, and transported by sea from Dalian Port to the Barcelona Port in Spain for sale in Spain, France, Germany, and other countries.

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. The energy consumption data for the vehicle production stage were provided by Chery itself.

Data sources

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

The carbon emission factors are sourced from the CALCD and site-specific factors provided by Chery. 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	Chery
	Vehicle fuel consumption per 100 km	
	Vehicle electricity consumption per 100 km	
	Component material raw weight	
	Tire raw material weight	
	Lead-acid battery material weight	
	Power battery raw material weight	
	Liquid raw material weight	
	Low carbon Aluminum weight and carbon emission factor	
	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

Contents I
Abbreviation IV
Executive Summary V

Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Contents

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Data Quality	Data Category	Data Source
Medium	Carbon emission factors for Energy consumption in Vehicle Production Stage	CALCD
Medium	Carbon emission factors for electricity production in Use Stage	Green NCAP
	Carbon emission factors for fuel production in Use Stage	
Medium	Energy consumption factors for fuel production	CALCD, Ecoinvent 3 and Green NCAP
	Energy consumption factors for energy production	
	Material energy consumption factors	

Material Acquisition and Processing Stage

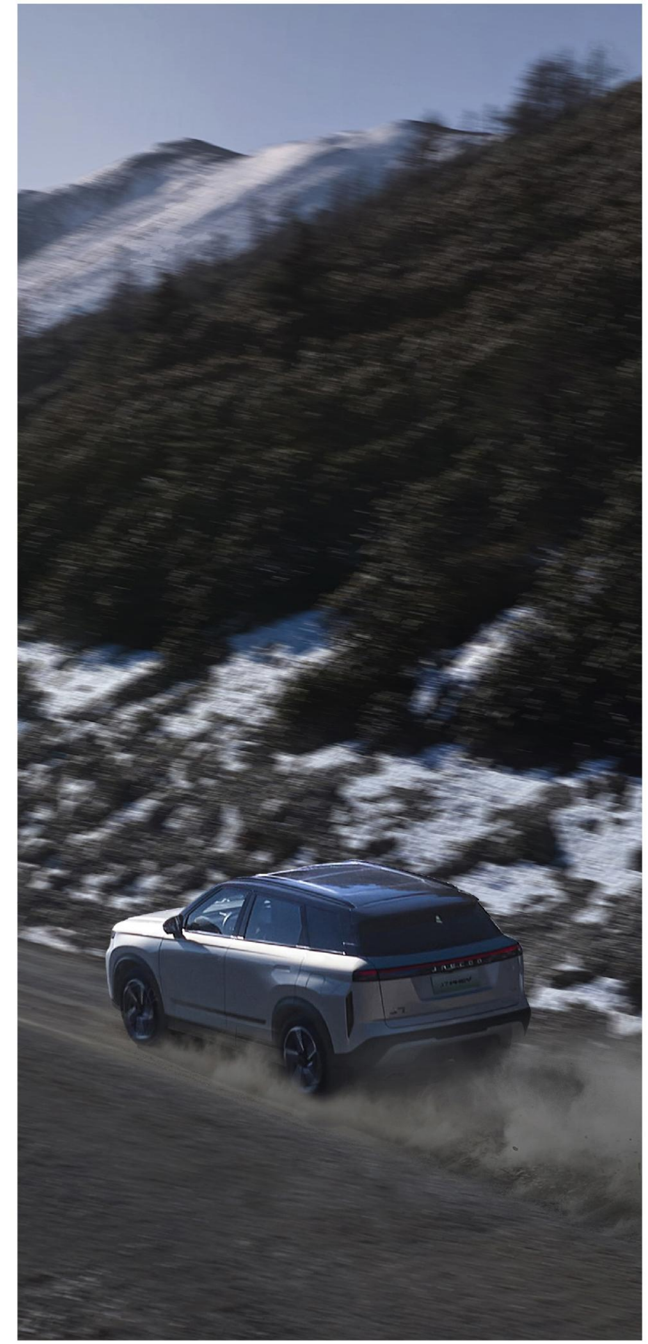
This stage commences with the extraction of resources from nature and concludes when raw materials enter the product production facilities. The material weight data for this stage are provided by Chery. The carbon emission factors for the vast majority of materials are sourced from the China Automotive Life-Cycle Database (CALCD)[6-11], while those for low-carbon materials are provided by Chery. Details are shown in Table 3-2, Table 3-3, Table 3-4, Table 3-5, and Table 3-6.

For clarity, entries such as "low-carbon aluminium - 2nd to 5th bearing covers" give the low-carbon aluminium mass within those component only; all other material masses for the same component are listed separately under their respective material categories in Table 3-2.

Low-carbon aluminium refers to aluminium whose production incorporates recycled aluminium, low-carbon process technologies, or green electricity. Because its carbon emission factor is lower than the default value, it is designated as "low-carbon aluminium". The carbon emission factors were sourced from suppliers and provided to Chery through CICES.

Table 3-2 JAECOO 7 SHS Material Acquisition and Processing Stage - Bill of Component Material Inputs

Material Category	Weight	Data Source	Data Source
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery



Material Category	Weight	Data Source	Data Source
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery

Material Category	Weight	Data Source	Data Source
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery

Table 3-3 JAECOO 7 SHS Material Acquisition and Processing Stage - Bill of Tire Material Inputs

Material	Weight	Data Source	Data Source
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery

Table 3-4 JAECOO 7 SHS Material Acquisition and Processing Stage - Bill of Lead-acid Battery Material Inputs

Material	Weight	Data Source	Data Source
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery
		kg/vehicle	Chery

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Contents I

Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Table 3-5 JAECOO 7 SHS Material Acquisition and Processing Stage - Bill of Power Battery Material Inputs

Material	Weight	Data Source	Data Source
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery

Table 3-6 JAECOO 7 SHS Material Acquisition and Processing Stage - Bill of Liquid Material Inputs

Material	Weight	Data Source	Data Source
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery
[redacted]	[redacted]	kg/vehicle	Chery

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 Chery. 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

Material	Material Use Factor	Data Source
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
Low-carbon Aluminum	100%	Chery

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. According to the data provided by Chery, the energy consumption of the plant's vehicle production stage from January 1, 2024 to December 30, 2024 is used to replace the energy consumption of JAECOO 7 SHS, as shown in Table 3-8 and Table 3-9. During the statistical period, the plant produced a total of 74,814 vehicles of various models.

The carbon emission factor of natural gas is 2.2322 $kgCO_2e/m^3$. The carbon emission factor of purchased photovoltaic is 0.0545 $kgCO_2e$/kWh, while there is no emission factor for self-generated photovoltaic, so the factor for purchased photovoltaic was used as a substitute. The carbon emission factor of purchased electricity is 0.5618 $kgCO_2e$/kWh, calculated based on China's national electricity carbon footprint factor and adjusted for Liaoning Province's power-generation mix (JAECOO 7 SHS is produced in Dalian, Liaoning); distribution losses are excluded. All carbon emission factors are sourced from CALCD[6-11].

Table 3-8 JAECOO 7 SHS Vehicle Production Stage - Bill of Fuel/Energy Consumption

Fuel/Energy Type	Fuel/Energy Category	Amount	Unit	Data Source
Primary energy			kg	Chery
Primary energy			m^3	Chery
Secondary energy			kWh	Chery
Secondary energy			kWh	Chery
Secondary energy			kWh	Chery
Secondary energy			t	Chery

Table 3-9 JAECOO 7 SHS Vehicle Production Stage - Bill of Direct Greenhouse Gas Emission

Greenhouse gas designation	Direct discharge mode	Amount	Unit	Data Source
CO_2			t	Chery

Vehicle Transportation Stage

This stage includes processes of vehicle transported from China to Europe. According to the data in www.searates.com[17], the maritime transportation distance between Dalian (a core northern Chinese maritime hub) and Barcelona is 17,105.85km.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 JAECOO 7 SHS Vehicle Transportation Stage - Bill of Transport Distance

Stage	Transport Distance	Unit	Data Source
Vehicle Transportation Stage	17105.85	km	www.searates.com

Use Stage

The JAECOO 7 SHS 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 fuel consumption of JAECOO 7 SHS is 1.27 L/100 km, electricity consumption is 15.2 kWh/100 km. This stage considers power consumption during vehicle driving, refrigerant leakage, and replacements of liquids, tires, Lead-acid batteries, etc. Gasoline and electricity consumption during the use phase are shown in Table 3-11. The carbon emission factors for gasoline and electricity are 0.72675 $kgCO_2e$/L and 0.2124 $kgCO_2e$/kWh,

Contents I
Abbreviation IV
Executive Summary V

Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

respectively, sourced from Green NCAP[13]. The assumed leakage and replacement frequencies for refrigerants, fluids, tires, lead-acid batteries, etc., are shown in Table 3-12.

Table 3-11 JAECOO 7 SHS Use Stage - Bill of JAECOO 7 SHS Electricity Consumption

Name	Consumption	Unit	Data Source
Fuel Production	1.27	L/100km (WLTC)	Chery
Fuel Use	1.27	L/100km (WLTC)	Chery
Electricity Production	15.2	kWh/100km (WLTC)	Chery
Electricity Use	15.2	kWh/100km (WLTC)	Chery

Table 3-12 JAECOO 7 SHS Use Stage - Component Replacement/Emission Frequency

Name	Replacement/Emission Frequency	Data Source
Tire	4 tires, 4 replacements in lifecycle	CALCM
Lead-acid Battery	3 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

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[14][15], the carbon emission during the end-of-life stage of the JAECOO 7 SHS is shown in Table 3-13, and the energy consumption data are presented in Table 3-14.

Table 3-13 JAECOO 7 SHS 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 JAECOO 7 SHS End-of-Life Stage - Energy Consumption

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

LIFE CYCLE IMPACT ASSESSMENT

4.1 Environmental Impact Assessment Method

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[5] "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[5]. 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	$kgCO_2e$

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 PR? Consultants 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

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 JAECOO 7 SHS vehicle was obtained. The result is presented in Table 4-3 for both vehicle-km in gCO_2e/km and for 240,000 km lifetime milage in $kgCO_2e$.

Table 4-3 JAECOO 7 SHS Life Cycle Stage Emission Summary Table

Life Cycle Stage	Carbon Footprint (gCO_2e/km)	Carbon Footprint ($kgCO_2e$)
Material Acquisition and Processing Stage	40.79	9790.36
Vehicle Production Stage	1.13	270.58
Vehicle Transportation Stage	1.27	303.63
Use Stage	76.57	18378.02
End-of-Life Stage	0.64	153.27
Total	120.40	28895.86

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 carbon footprint of the JAECOO 7 SHS 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 JAECOO 7 SHS 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	0.403	96754.87
Vehicle Production Stage	0.014	3269.67
Vehicle Transportation Stage	0.017	3977.54
Use Stage	1.836	440547.38
End-of-Life Stage	0.005	1230.55
Total	2.275	545780.01

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Contents I

Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

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.

LIFE CYCLE RESULT INTERPRETATION

5.1 Carbon Footprint

Identification of Key Issues

The proportion of GHG emissions in each stage of the JAECOO 7 SHS vehicle's life cycle is shown in Figure 5-1. The carbon footprint is 120.40 gCO_2e/km, with the use stage accounting for the highest emissions at 76.57 gCO_2e/km (63.6%), followed by the material acquisition and processing stage at 40.79 gCO_2e/km (33.9%), vehicle transportation stage contributing at 1.27 gCO_2e/km (1.1%) , and the vehicle production stage contributing at 1.13 gCO_2e/km (0.9%) , and the End-of-life stage contributing the least at 0.64 gCO_2e/km (0.5%). Next sections will provide a detailed analysis of the GHG emissions in each stage of the JAECOO 7 SHS's life cycle.

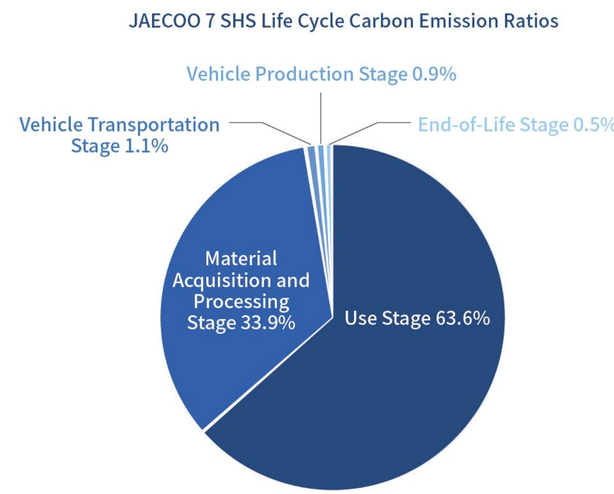


Figure 5-1 JAECOO 7 SHS Life Cycle Carbon Emission Ratios

Material Acquisition and Processing Stage

The GHG emissions in JAECOO 7 SHS's material acquisition and processing stage are 40.79 gCO_2e/km, accounting for 33.9% of the total life cycle GHG emissions. This study divides the vehicle into components, lead-acid 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 30.39 gCO_2e/km, accounting for 74.5% of the material acquisition and processing stage; followed by power batteries with 19.42 gCO_2e/km, accounting for 23.1%; tires with 0.65 gCO_2e/km, accounting for 1.6%; liquids and lead-acid batteries emit 0.21 gCO_2e/km and 0.13 gCO_2e/km, respectively, accounting for approximately 0.5% and 0.3% of the material acquisition and processing stage emissions.

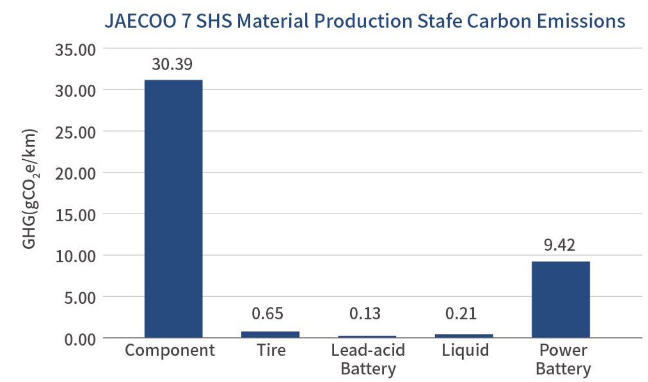


Figure 5-2 JAECOO 7 SHS Material Acquisition and Processing Stage GHG emissions

Vehicle Production Stage

The GHG emissions from JAECOO 7 SHS's vehicle production stage, calculated using enterprise-provided data, are 1.13 gCO_2e/km in Figure 5-3. Secondary energy use contributes the highest emissions at 0.85 gCO_2e/km (75.1% of the stage's total), with Purchased electricity accounting for 60.5%, Steam 10.5%, Purchased photovoltaic power 3.5%, and Self-owned photovoltaic 0.6%. Primary energy Natural gas use follows with 0.28gCO_2e/km (24.6%), Diesel 0.0002gCO_2e/km (0,014%), while direct CO_2 emissions are negligible at 0.004gCO_2e/km (about 0.3%).

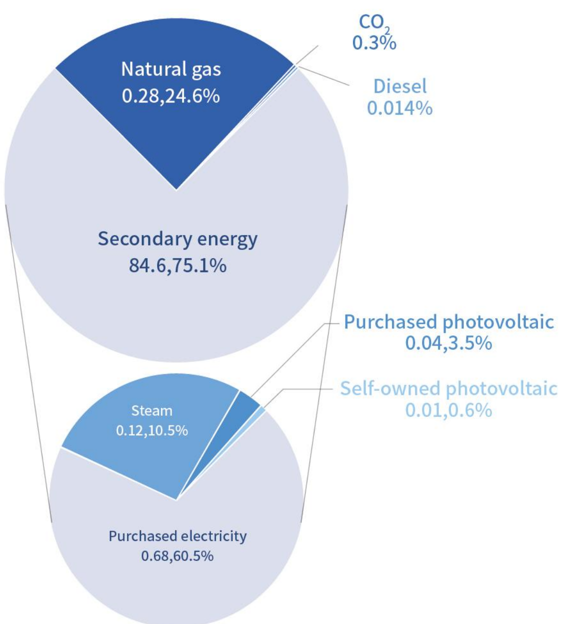


Figure 5-3 JAECOO 7 SHS Vehicle Production Stage GHG emissions

Vehicle Transportation Stage

The carbon emissions for the Vehicle Transportation Stage of the JAECOO 7 SHS are based on the default values from the CALCM[14][15] and the sea transport distance from Dalian to Barcelona, which is 1.27 gCO_2e/km.

Use Stage

The GHG emissions in the vehicle use stage are 76.57 gCO_2e/km, accounting for 63.6%. As shown in Figure 5-4, GHG emissions from energy production (petrol and electricity) are the highest at 41.51 gCO_2e/km, accounting for 54.2% of GHG emissions in the use stage; energy use (petrol only) is 30.09 gCO_2e/km, accounting for 39.3%; tire replacement is 2.62 gCO_2e/km, accounting for 3.4%; liquid replacement is 1.96 gCO_2e/km, accounting for 2.6%; lead-acid battery replacement is 0.38 gCO_2e/km, accounting for 0.5%; refrigerant emissions are 0.001 gCO_2e/km, accounting for about 0.001%.

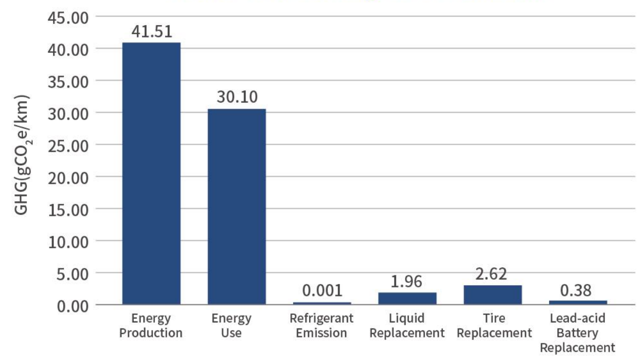


Figure 5-4 JAECOO 7 SHS Use Stage GHG emissions

End-of-Life Stage

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

5.2 Primary Energy Consumption

Identification of Key Issues

The primary energy consumption proportions at each stage of the life cycle of the JAECOO 7 SHS model are shown in Figure 5-5. The total energy consumption of the vehicle is 2.275 MJ/km, with the highest primary energy consumption occurring during the use phase, accounting for 1.836 MJ/km (80.7%). This is followed by the material acquisition and processing stage, which accounts for 0.403 MJ/km (17.7%); the vehicle transportation stage, which contributes 0.017 MJ/km (0.7%); the vehicle production stage, which accounts for 0.014 MJ/km (0.6%); while the end-of-life stage has the lowest primary energy consumption at 0.005 MJ/km (0.3%). Next sections will provide a detailed analysis of the primary energy consumption at each stage of the JAECOO 7 SHS model' s life cycle.

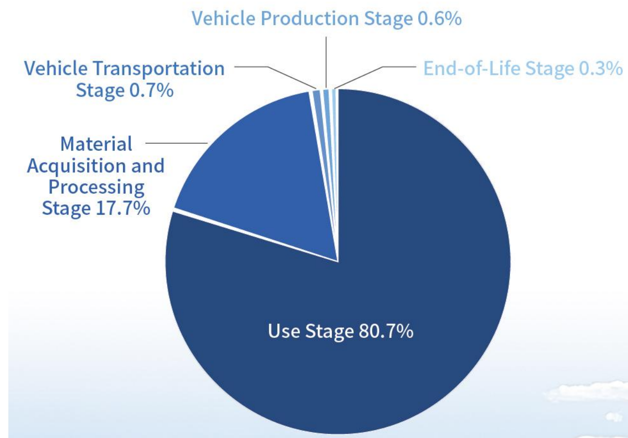
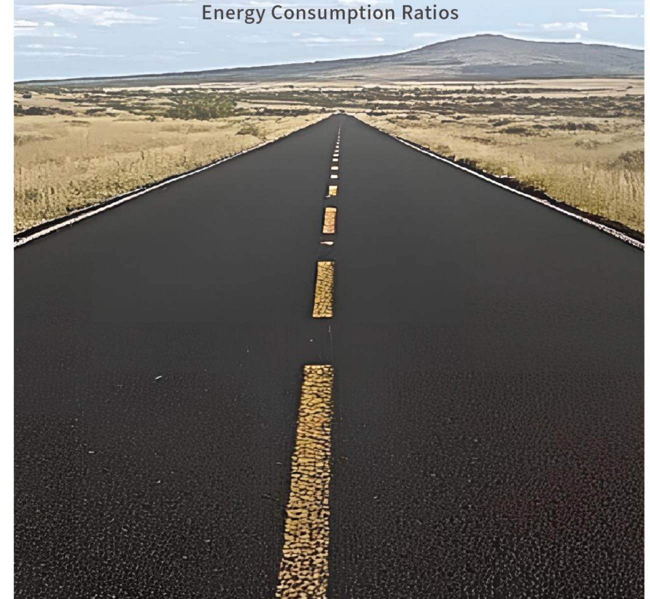


Figure 5-5 JAECOO 7 SHS Life Cycle Primary Energy Consumption Ratios



Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Material Acquisition and Processing Stage

The primary energy consumption of the JAECOO 7 SHS model during the material-production stage is 0.403 MJ/km, accounting for 17.7% of the vehicle' s total life-cycle primary energy consumption. In this study, the whole vehicle is divided by component,lead-acid battery, power battery ,fluids ,tires ,etc .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 73.4% of the material-production stage' s total. Next is the power battery, with a primary energy consumption of 0.085 MJ/km (21.1%). Tires consume 0.015 MJ/km (3.7%), while fluids and the lead-acid battery consume 0.006 MJ/km and 0.001 MJ/km, corresponding to approximately 1.5% and 0.3% of the material-production stage' s primary energy consumption, respectively.

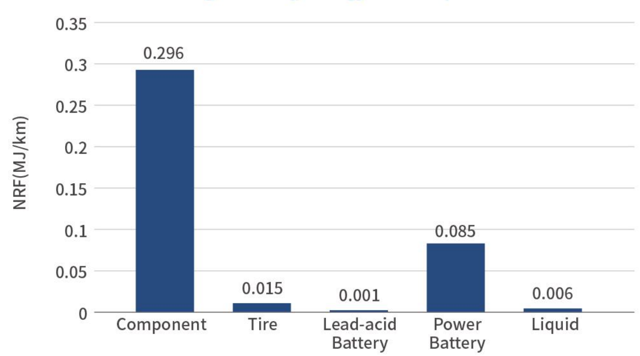


Figure 5-6 JAECOO7 SHS Material Acquisition and Processing Stage Primary Energy Consumption

Vehicle Production Stage

The primary energy consumption of the JAECOO 7 SHS 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%).

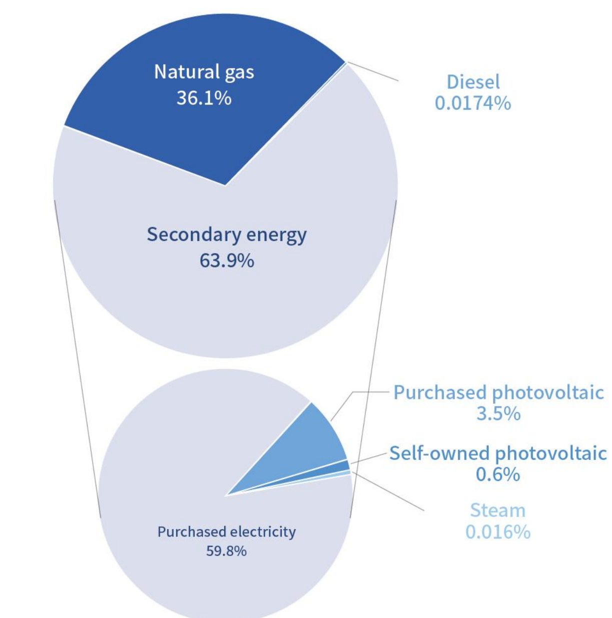


Figure 5-7 JAECOO 7 SHS Vehicle Production Stage Primary Energy Consumption

Vehicle Transportation Stage

The primary energy consumption for the vehicle transportation stage of the JAECOO 7 SHS is based on the default values from CALCM[14][15] and the sea transport distance from Dalian to Barcelona, with a consumption factor of 0.017 MJ/km.

Use Stage

The primary energy consumption in the vehicle use stage is 1.836 MJ/km, accounting for 80.7%. As shown in Figure 5-8, electricity production has the highest primary energy consumption at 1.16 MJ/km, representing 63.2% of this stage; gasoline production is 0.525 MJ/km (28.6%); tire replacement is 0.059 MJ/km (3.2%); liquid replacement is 0.089 MJ/km (4.8%); and lead-acid battery replacement is 0.003 MJ/km (0.2%).

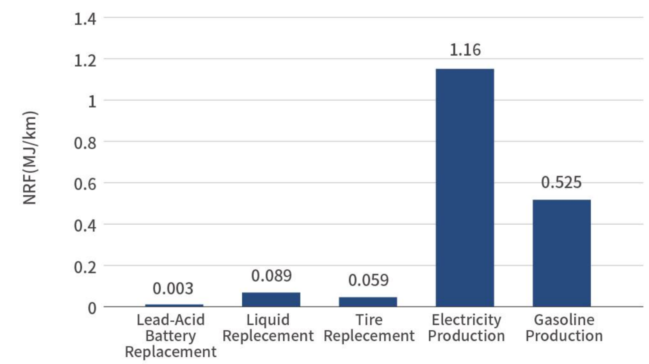


Figure 5-8 JAECOO 7 SHS Use Stage Primary Energy Consumption

End-of-Life Stage

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

5.3 Sensitivity analysis

Carbon Footprint

The use phase of a vehicle' s life cycle is the predominant contributor to both carbon emissions and primary energy consumption, primarily due to the electricity and fuel consumed during vehicle operation. To evaluate the influence of electricity and fuel use on these metrics, a single-factor sensitivity analysis was performed. Using the baseline values (15.2 kWh/100 km and 1.27 L/100 km) as the reference, use-phase electricity and fuel consumption were varied by ±10% and the resulting changes in life-cycle carbon emissions and primary energy consumption were examined. The analysis shows that a 10% increase in use-phase electricity and fuel consumption (relative to the baseline) leads to increases of 5.95% and 7.41% in carbon emissions and primary energy consumption, respectively; conversely, a 10% decrease produces equivalent declines of 5.95% and 7.41%.

In addition, scenario sensitivity analyses were conducted for two extreme powertrain pathways. Under the conventional (pure-fuel) scenario (6 L/100 km), carbon emissions increase by 94.9% and primary energy consumption increases by 34.9% relative to the baseline. Under the battery-electric scenario (21.5 kWh/100 km), carbon emissions reduce by 21.5% while primary energy consumption reduce by 1.9% relative to the baseline.

In summary, use-phase electricity and fuel consumption are decisive factors for a vehicle's life-cycle carbon emissions and primary energy demand. Different powertrain pathways entail clear trade-offs (for example, a battery-electric scenario can reduce primary energy demand but—given the present electricity mix—may increase carbon emissions). Therefore, mitigation strategies should account for both operational energy consumption levels and the carbon intensity and efficiency characteristics of the electricity and fuels used.

5.4 Integrity and Consistency Check

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.

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.

Contents

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS

6.1 Conclusions

Carbon Footprint: The total life cycle carbon footprint is 120.40 gCO2e/km, with the use stage (76.57 gCO2e/km, 63.6%) and material acquisition stage (40.79 gCO2e/km, 33.9%) being the dominant contributors.

Primary Energy Consumption: Total primary energy consumption is 2.275 MJ/km, where the use stage accounts for 80.7% (1.836 MJ/km).

Key Drivers: Fuel/electricity production and consumption dominate use stage impacts. Component materials (74.5% of material stage emissions) and power batteries (23.1%) are critical in upstream phases. These results provide a comparative baseline for environmental performance improvements within the defined system boundaries.

6.2 Recommendations

To reduce environmental impacts, the following recommendations are proposed based on the results of this study:

Use Stage Optimization

Promote renewable-energy charging. This study shows that energy used during the vehicle use stage is a major contributor to life-cycle primary energy consumption (80.7%) and to the life-cycle carbon footprint (63.6%). Therefore, in engagements with energy suppliers and communications with consumers, the use of renewable electricity for vehicle charging (e.g., wind, solar) should be strongly promoted. Such measures will directly reduce use-stage carbon emissions and energy consumption.

Reduce fuel consumption. Although the vehicle evaluated is a PHEV and already exhibits relatively low fuel use, gasoline consumption remains an important source of use-stage carbon emissions (39.3%). In addition, gasoline production is a significant contributor to energy consumption (28.59%). Continued optimisation of engine efficiency and of overall energy-management strategies to further reduce fuel consumption is an effective way to lower overall environmental impacts.

Material Stage Initiatives

Increase recycled content in high-impact materials. The results indicate that component materials-primarily steel and aluminium alloys-are the dominant contributors to material-stage carbon emissions (74.5%) and energy consumption (73.4%). Increasing the share of recycled content (for example, recycled steel and recycled aluminium) in these key material streams can substantially reduce their embodied primary energy demand and embodied carbon.

Collaborate to optimise battery production. The power battery is the second-largest source of environmental impacts within the material stage (accounting for 23.1% of the material-stage carbon footprint and 21.1% of material-stage energy consumption). Priority should be given to collaboration with battery suppliers to investigate and improve production processes for key battery components-such as LFP (lithium iron phosphate) cathode materials, anode materials, and electrolytes-improving manufacturing energy efficiency and material utilisation to reduce the battery' s embodied carbon and embodied energy.

Production Enhancements

Scale up on-site renewable energy deployment. According to the report, vehicle production-stage carbon emissions and primary energy consumption are driven predominantly by purchased electricity (accounting for 60.5% of production-stage emissions and 59.8% of production-stage energy consumption). Although the plant currently utilises some photovoltaic generation, it is recommended to further expand distributed on-site PV capacity and to explore other renewable options (e.g., wind) to reduce reliance on grid electricity and thereby lower the production-stage carbon intensity and energy consumption.

6.3 Limitations

This study is subject to the following constraints:

Production Enhancements

Data Availability: Background data for minor materials (e.g., adhesives, textiles) relied on industry-average databases (CALCD[6-11]/Ecoinvent[8]). End-of-life impacts used generic regional models due to limited vehicle-specific recycling data.

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.

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

REFERENCES

[1] ISO 14040:2006: Environmental management - Life cycle assessment - Principles and framework.

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

[3] ISO 14067:2018 Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quantification.

[4] SEA-Guidelines: Guidelines for Sino-European Automotive Carbon Footprint Accounting, Verification, and Mutual Recognition.

[5] Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

[6] SUN X, LUO X, ZHANG Z, et al. Life cycle assessment of lithium nickel cobalt manganese oxide (NCM) batteries for electric passenger vehicles [J]. Journal of Cleaner Production, 2020, 273: 123006.

[7] SUN X, MENG F, LIU J, et al. Life cycle energy use and greenhouse gas emission of lightweight vehicle – A body-in-white design [J]. Journal of Cleaner Production, 2019, 220: 1-8.

[8] WU Z, WANG M, ZHENG J, et al. Life cycle greenhouse gas emission reduction potential of battery electric vehicle [J]. Journal of Cleaner Production, 2018, 190: 462-70.

[9] AUTOMOTIVE DATA OF CHINA CO. L. China Automotive Low Carbon Action Plan (2022) [M]. Beijing: Springer Singapore, 2023. https://doi.org/10.1007/978-981-19-7502-8

[10] REN Y, SUN X, WOLFRAM P, et al. Hidden delays of climate mitigation benefits in the race for electric vehicle deployment [J]. Nature Communications, 2023, 14(1): 3164.

[11]China Automotive Life Cycle Database. http://39.107.102.249:8090/

[12]Ecoinvent Database version 3.

[13]Green NCAP. (2024). Life Cycle Assessment (LCA) Methodology and Data.

[14]WU Z, WANG C, WOLFRAM P, et al. Assessing electric vehicle policy with region-specific carbon footprints [J]. Applied Energy, 2019, 256: 113923.

[15]CHEN W, SUN X, LIU L, et al. Carbon neutrality of China ‘s passenger car sector requires coordinated short-term behavioral changes and long-term technological solutions [J]. One Earth, 2022, 5(8): 875-91.

[16]T/CSAE 410—2025: Greenhouse gases - Quantitative methods and requirements of product carbon footprint - Electric passenger car

[17]SeaRates. (2024). Distance Calculator for Sea Freight. https://www.searates.com/distance-time/

APPENDIX 1 – CRITICAL REVIEW

CERTIFICATE OF VERIFICATION

Critical Review

As an independent partner, DEKRA Assurance Services GmbH confirms

Chery Automobile Co., Ltd.

the review of the Life Cycle Assessment (LCA) study commissioned by Chery Automobile Co., Ltd. and prepared by China Automotive Carbon 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 China Automotive Carbon Digital Technology Center Co., Ltd.; the completeness and correctness of the data used is ensured by Chery Automobile 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 Chery (Omoda and Jaecoo) Jaecoo 7 SHS (11/21/2025, SEALCA20250930001, version 1.1)

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 991225278 is only valid with the pertinent Critical Review report number 120342014 dated 12/04/2025 which provides a detailed assessment of the study.

The content of the study and its use remain the sole responsibility of Chery Automobile Co., Ltd.

Stuttgart, 12/04/2025
DEKRA Assurance Services GmbH

Simona Gläser
Managing Director

ppa. Peter Ruschin
Head of Sustainability Services

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

Contents I

Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

APPENDIX 2 – LCI DATASETS

Table 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
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
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⊠)	agg	CALCD 3.0
Graphite	Other Materials	CN	Graphite	agg	CALCD 3.0

Material category	Material type	Location	Name of LCI dataset	Type	LCI database
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

Contents I

Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Table 2 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 3 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%

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Contents

Contents I
Abbreviation IV
Executive Summary V
Overview 01
About Chery, OMODA and JAECOO 01
About the Product 01
Relevant standards 01
Methodology 01
Goal of the Study 01
Scope of the Study 01
Functional Unit 01
System Boundaries 01
Main Assumptions and Exclusions 02
Allocation 03
Cut-off Criteria 03
Critical Review 03
Life Cycle Inventory Analysis 03
Data Sources and Quality 04
Time-related Coverage 04
Geographical Coverage 04
Technology Coverage 04
Data sources 04
Material Acquisition and Processing Stage 05
Vehicle Production Stage 08
Vehicle Transportation Stage 08
Use Stage 08
End-of-Life Stage 09
Life Cycle Impact Assessment 10
Environmental Impact Assessment Method 10
Carbon Footprint 10
Primary Energy Consumption 10
Environmental Impact Assessment Results 10
Product Carbon Footprint Calculation Results 10
Product Primary Energy Consumption Calculation Results 10
Interpretation Note 11
Life Cycle Result Interpretation 11
Carbon Footprint 11
Identification of Key Issues 11
Material Acquisition and Processing Stage 11
Vehicle Production Stage 11
Vehicle Transportation Stage 12
Use Stage 12
End-of-Life Stage 12
Primary Energy Consumption 12
Identification of Key Issues 12
Material Acquisition and Processing Stage 13
Vehicle Production Stage 13
Vehicle Transportation Stage 13
Use Stage 13
End-of-Life Stage 13
Sensitivity analysis 13
Integrity and Consistency Check 13
Integrity Check 14
Consistency Check 14
Conclusions, Recommendations and Limitations 15
Conclusions 15
Recommendations 15
Limitations 16
References 17
Appendix 1 – 2 18

Table 4 Background data for the supply of electricity to the charging station in Europe 27 (EU27) (g CO_2e/kWh).[1]

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

[1] 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.

奇瑞汽车
CHERY AUTO
OMODA | JAECOO