

Shandong Hi-Speed Group Co., Ltd

Green Finance Framework

March 2025



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1. Introduction

Shandong Hi-Speed Group Co., Ltd (“**Shandong Hi-Speed**”, “**Company**” or “**SDHS**”, the Company and their respective subsidiaries together, the “**Group**”) was established by the People’s Government of Shandong province (“**Shandong Government**”) as a wholly state-owned enterprise under the direct supervision of the State-owned Assets Supervision and Administration Commission of Shandong province (“**SSASAC**”). SSASAC, on behalf of Shandong Government, acts as the Company’s majority shareholder and holds the shares of the Company together with Shandong Guohui Investment Co., Ltd. (山東國惠投資有限公司) (“**Shandong Guohui**”) and Shandong Caixin Asset Operation Co., Ltd (山東省財欣資產運營有限公司) (“**Shandong Caixin**”).

Leveraging its advantages in its core expressway and railway businesses, the Group has grown into a modernised, international and efficient transportation and infrastructure conglomerate. The Company, through its subsidiaries and affiliates, is principally engaged in the investment in, and construction, operation and management of various transportation and infrastructure facilities. The Group’s businesses can be divided into the following segments:

- expressway;
- railway;
- construction;
- logistics and trading;
- financial investment; and
- others.

The Group is the largest provincially supervised state-owned enterprise in Shandong province and the largest infrastructure developer in Shandong province in terms of total assets as at 31 December 2023. It is also an industry leader in terms of total assets as at 31 December 2023. As at and for the years ended 31 December 2021, 2022 and 2023, the Group’s total assets ranked first and profits ranked among the top, respectively, among all state-owned enterprises directly supervised by Shandong Government.

The Company was originally established in 1997 and was converted into a wholly state-owned enterprise by the Shandong Government under the direct supervision of SSASAC in 1999. The Company officially commenced its business in 2001 under the name of Shandong Province Hi-Speed Expressways Limited Liability Company (山東省高速公路有限責任公司) (“**SPHEL**”) and subsequently in 2002, the Company was recognised as a large wholly state-owned enterprise by the Shandong Province Economic and Trade Commission (山東省經貿委) and the Shandong Province Statistics Bureau (山東省統計局) .

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In 2005, SSASAC became the sole shareholder of the Company, and the Company's name was changed to Shandong Province Expressways Group Co., Ltd (山東省高速公路集團有限公司). In 2008, with the approval of SSASAC, the Company's name was further changed to its current name, Shandong Hi-Speed Group Co., Ltd (山東高速集團有限公司). In 2018, pursuant to the Notice of SSASAC and Shandong Social Security Fund regarding Amendment to the Articles of Association of Shandong Hi-Speed Group (《省人民政府國有資產監督管理委員會、山東社保基金理事會關於修訂〈高速集團有限公司章程〉的通知》) published by Shandong Government, Shandong Guohui and Shandong Social Security Fund became minority shareholders of the Company, holding 20 per cent. and 10 per cent. of the equity interest in the Company, respectively.

The Group has, since its inception in 1997, firmly established its position as an industry leader in the investment in, and construction, operation and management of roads, expressways, bridges and tunnels in Shandong province. The Group has built up a strong and stable asset portfolio of quality expressway and railway and an established operational track record. As at 31 December 2024, the Group operated expressways with a total length of approximately 9,070 kilometres, of which approximately 7,335 kilometres are in Shandong province.

The Group is also a main railway operator in Shandong province. As at 31 December 2024, the Group operates and manages railways in a total length of approximately 634.0 kilometres. The Dajiawa-Laizhou-Longkou Railway is an important part of the building of the "four vertical and four horizontal" hi-speed passenger access network in Shandong province.

Expressway Business Segment

The Group is primarily engaged in the investment in, and operation and management of, roads, expressways, bridges, tunnels in Shandong, Sichuan, Henan, Yunnan, Hunan and Hubei provinces. The Group has, since its inception in 1997, firmly established its position as an industry leader in the investment in, and construction, operation and management of roads, expressways, bridges and tunnels in Shandong province.

Railway Business

In terms of railways, the Group is primarily engaged in the investment in, and construction and operation of railways and rail transit infrastructure in Shandong province and other regions of the PRC. The railway business serves as a complement to the Group's expressway business and is an important part of the Group's integrated transport infrastructure network. The Group's railway business originated from Shandong Local Railway Bureau. Hence, the Group has received substantial governmental support over the years in undertaking construction projects. It is actively participating in the investment in, and construction and management of railway projects in the PRC on behalf of Shandong Government.

The Group's railway business is conducted through SDHS Rail Transit, one of its key subsidiaries, which engages in the investment in, and construction and operation of, regional and urban light and inter-city rail transit infrastructure in Shandong province. Besides, Shandong Railway Investment, a subsidiary of the Company, also engaged in the development, management and operation of railways in Shandong province and other regions that are part of the PRC railway network.

Through SDHS Rail Transit, the Group engages in the investment in, and construction and operation of regional railways, repairing of cargo facilities, maintenance and sales of spare parts of shipping facilities. It is also involved in the construction of regional railroads and

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operation of railway lines, operation of storage facilities for non-hazardous materials and provision of freight solutions.

Contribution to Sustainability

As a major state-owned enterprise of the Shandong Government, Shandong Hi-Speed Group plays an important role in implementing the mission of infrastructure construction in Shandong province.

Through the development of railways and rail transit infrastructure in Shandong province and other regions of the PRC, the Company is able to contribute to the development of diversified and multi-modal transportation for the public. In particular, low-carbon transport has a key role to play in facilitating a modal transportation shift, enabling the transition to a low carbon economy and to support future climate change mitigation efforts.

Shandong Hi-Speed Group adopts proactive environmental protection policies which establishes sound polices to minimize negative environmental impacts brought by expressway, road, bridges and railway construction and operation. At the same time, the Company actively promotes energy conservation and emission reduction to put forth the concept of environmental protection to every work detail.

A prominent example is that the Company has gone beyond Business-as-Usual activities to install solar panel-powered lighting on its expressways.

2. Green Finance Framework (“GFF”)

Shandong Hi-Speed Group and its subsidiaries intend to use this Framework as the basis to issue Green Bonds and Loans (“**Green Financing Instruments**”). The Green Financing Instruments will fund Eligible Green Projects that conform to the green finance principles listed below:

- the International Capital Market Association (“**ICMA**”) Green Bond Principles (“**GBP**”) 2021 (within June 2022 Appendix 1)¹; and/or
- the Loan Market Association (“**LMA**”) Green Loan Principles (“**GLP**”) 2025².

In aligning with the above principles and guidelines, Shandong Hi-Speed Group’s Green Finance Framework is presented through the four core components of the GBP’s and GLP’s as well as their recommendation for external review:

- a) Use of Proceeds;
- b) Process for Project Evaluation and Selection;
- c) Management of Proceeds;
- d) Reporting.

Bond(s) and loan(s) issued under this Framework may take the form of public transactions or private placements, in bearer or registered format, and may take the form of senior unsecured or subordinated issuances. Such bond(s) and loan(s) entered into under this Framework will be standard recourse-to-the-issuer obligations and investors will not bear the credit risk of the underlying allocated eligible asset exposures.

2.1 Use of Proceeds

SDHS and its subsidiaries will allocate an amount at least equivalent to the net proceeds of the Green Financing Instruments issued under this Framework to finance and/or re-finance, in whole or in part, eligible green projects. The eligible green projects may include assets, capital expenditures, operational expenditures, research & development expenses, and/or equity investments into pure-play entities.




- These include equity participations in entities where at least 90% of the revenues can be attributed to one or more of the Eligible Green Project Categories described in Use of Proceeds section of this Framework (“pure-play companies”). Investment in pure-play companies, where the equity investment is not traceable to underlying projects in the use of proceeds, will be limited to 5% of the proceeds allocation.

A maximum 3-year look-back period would apply for refinanced projects and Shandong Hi-Speed Group expects each issuance under this framework to be fully allocated within 2 years from the date of issuance. However, for those assets such as long-term green infrastructure construction projects may require longer allocation periods. The SDHS will, where possible, disclose to stakeholders the expected share of financing versus refinancing for any Green Financing Instrument under this Framework.

¹ <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/>

² https://www.lma.eu.com/application/files/1917/4298/0817/Green_Loan_Principles_-_26_March_2025.pdf

Eligible Green Categories

GBP Category	Eligibility Criteria
<p>Renewable Energy</p> 	<p>Development, investment, acquisition, production, installation, operation, transmission and storage of existing, or new projects related to the energy from the following renewable sources (including manufacture of dedicated components for renewable energy):</p> <ul style="list-style-type: none"> • Solar (PV and Concentrated Solar Power with a minimum 85% of power generation derived from solar sources) • Wind energy (including onshore and offshore) • Hydropower, including pumped storage, with either a power density above 5W/m² or life-cycle GHG emissions intensity below 100gCO₂e/kWh • Geothermal, with life-cycle emissions intensity threshold below 100gCO₂e/kWh • Green hydrogen and green ammonia (from electrolysis powered by 100% renewable energy including wind and solar), or with a life-cycle GHG emissions intensity lower than 3tCO₂e/tH₂ • Ocean energy (Tidal, wave) • Transmission and distribution projects located on a system for which at least 67% of its added generation capacity over a rolling five-year period fall below the low carbon power threshold of 100gCO₂e/kWh measured on a life-cycle basis that aim to connect renewable energy sources or reduce GHG emissions
<p>Clean Transportation</p> 	<p>Investment, acquisition, operation, maintenance, and expenditure of projects related to the zero-direct emission vehicles for passenger and freight transportation, including road and rail transportation that is fully electrified.</p> <p>Investments, acquisition, operation and expenditure into construction, maintenance and renovation of dedicated hydrogen filling stations, charging infrastructure and battery swapping stations for electric vehicles.</p> <p>For the avoidance of doubt, infrastructure dedicated to the transportation of fossil fuel will be excluded</p>
<p>Energy Efficiency</p> 	<p>Investment, manufacture and installation of energy-efficient systems, products and technology that reduce energy consumption or improve operational energy efficiency by at least 20% compared to the average of national energy consumption of an equivalent project or technology, including:</p> <ul style="list-style-type: none"> • Modernization of lighting systems including LED lighting and HVAC infrastructure, building management systems • Investment in smart meters, sensors, and measurement tools on smart grids, as well as energy meters and energy management systems components <p>For the avoidance of doubt, improvement activities that result in the lock in of fossil fuel technologies will be excluded</p>
<p>Green Buildings</p>	<p>Projects related to investment, acquisition, development, construction and refurbishment of new or existing commercial or residential buildings³ that have received, or expect to receive based on its design, construction and operational plans, certification according to third-party verified green building standards, such as:</p>

³ The technical criteria and thresholds of Hong Kong Taxonomy for sustainable finance under sector 3.4: construction and renovation of buildings apply here. <https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2024/20240503e1.pdf>.



- U.S. Leadership in Energy and Environmental Design (LEED) – minimum certification of Gold; or
- BEAM Plus – minimum certification level of Gold; or
- Chinese Green Building Evaluation Standard – level of 3 stars; or
- BREEAM – minimum certification level of Excellent; or
- EDGE – minimum certification level of EDGE Certified; or
- BCA Green Mark – minimum certification level of Gold

Expenditures related to the development, investment, acquisition, construction, installation, operation, maintenance, and refurbishment of eco-efficient data centres with an annualised average Power Usage Effectiveness (“PUE”)⁴. The PUE threshold used for eligibility will depends on the different scenarios and due to climate conditions (i.e. temperature and humidity)⁵:

- a) For expenditures related to construction of new data centres with a PUE \leq 1.25 in cool climates and PUE \leq 1.30 in warm climates respectively, at 100% load for data centres.
- b) For expenditures related to major refurbishments of existing data centres that would lead to data centres with a PUE \leq 1.40 at 100% load for data centres.
- c) For acquisitions of data centres with a PUE \leq 1.30 in cool climates and PUE \leq 1.40 in warm climates respectively, at 100% load for data centres.

Exclusion List

For the avoidance of doubt, financing related to the following activities are excluded from the financing by SDHS’s Green Financing Instruments:

- Projects related to development, operation, and maintenance of new or existing fossil fuel-based electricity generation facilities, fossil fuel including but not limited to, coal, oil or natural gas;
- Projects related to the nuclear energy production or trade of nuclear fuel;
- Projects related to trade and production of conflict minerals;
- Projects related to the production of palm oil;
- Projects related to the production or trade of alcoholic beverages;
- Projects related to the production or trade of tobacco products;
- Projects related to the production or trade of weapons and ammunition;
- Gambling related activities;

2.2 Project Evaluation and Selection Process

⁴ According to the Uptime Institute Global Data Centre Survey 2024, the global average PUE of respondents’ largest data centres was 1.56. Uptime Institute Global Data Centre Survey Results 2024 - Uptime Institute

⁵ *There are wide range of factors that impact PUE, including external climatic conditions, air humidity, the availability of local resources, and the specific requirements of customers deployments. Therefore, the different scenarios and climatic conditions apply for annualized PUE of cool climates and warm climates. **Cool climates region** are those regions that are at or below cooling degree days from temperature corrected by humidity, measurement of 1500°C days based on for the IEA Weather, Climate and Energy Tracker. Cool climates region include but not limited to Northern China (i.e. Inner Mongolia, Beijing, Hebei etc.), Canada, and Japan and South Korea. **Warm climates region** are those that are at or above cooling degree day from temperature corrected by humidity, measurement of 1501°C days based on for the IEA Weather, Climate and Energy Tracker. Warm climates region include but not limited to Southern China (i.e. Greater Bay Area, Hainan etc.), ASEAN, and India.*

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The Project Evaluation and Selection Process will ensure that the proceeds of any Shandong Hi-Speed Group Green Financing Instrument are allocated to finance or refinance Eligible Green Projects that meet the criteria and objectives set out above in section 2.1, Use of Proceeds.

Shandong Hi-Speed Group's Green Finance Working Group (the "GFWG") will be responsible for governing and implementing the initiatives set out in the Framework.

The GFWG is comprised of senior representatives from the following departments for the selection and evaluation of the Eligible Green Projects: Secretary to the Board, Investment Department and Finance Department.

The GFWG may be supplemented from time to time, or expanded, by the inclusion of representatives from other relevant teams.

The GFWG will:

- Meet at least two times each year, endeavoured to be distributed evenly throughout the year
- Ratify Eligible Green Projects, which are initially proposed by the individual business units and project teams. The business units and project teams are responsible for evaluating and selecting projects by taking into consideration the following requirements, such as ensuring the project does not fall under any controversies, and exclusion list, and performing a comprehensive risk assessment and due diligence, including environmental and social risks and due diligence, based on the local environmental and social related laws and regulations as well as the SDHS's internal ESG risk management practices
- Ensure that projects comply with Shandong Hi-Speed Group's internal environmental and risk management policies as well as applicable local governmental regulations
- Undertake regular monitoring of the asset pool to ensure the eligibility of Green Projects with the criteria set out in Shandong Hi-Speed Group's GFF Section 2.1, Use of Proceeds, whilst replacing any ineligible Green Projects with eligible new Green Projects
- Facilitate regular reporting on any Green issuance in alignment with our Reporting commitments
- Manage any future updates to this Framework
- Ensure that the approval of Eligible Green Projects will follow the Company's existing project approval processes

The Group's operations are subject to various laws and regulations in the jurisdictions in which it operates. The Group's properties are subject to routine inspections by government officials with regard to various safety and environmental issues. The Company believes that the Group is in compliance in all material respects with government regulations currently in effect in the jurisdictions in which it operates.

The construction, survey, design and operation of expressways and railway in the PRC are subject to the supervision and administration of the relevant government authorities, primarily with respect to qualifications of the entities undertaking the construction, survey and design work, project tendering, quality, safety, checking for the completion of engineering works and environmental protection.

2.3 Management of Proceeds

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The proceeds of each Shandong Hi-Speed Group's Green Financing Instrument will be deposited in Shandong Hi-Speed Group's general funding accounts and earmarked for allocation towards the Eligible Green Projects. Shandong Hi-Speed Group will maintain a Green Finance Register to track the use of proceeds for the Green Financing Instrument.

The Green Finance Register will contain the following information:

- I. Green Financing Instrument details: ISIN (if applicable), Pricing Date, Maturity Date and etc.
- II. Allocation of Proceeds:
 - a. The Eligible Green Projects List, including for each Eligible Green Project, the Eligible Green Project category, project description, project location, amount disbursed, settled currency, etc.
 - b. Amount of unallocated Proceeds

Any proceeds temporarily unallocated will be invested according to the SDHS's standard liquidity policy in cash or cash equivalents. And unallocated proceeds will also be managed in line with the Exclusion Criteria listed in the Framework.

During the life of the Green Financing Instruments issued under this Framework, if the designated projects cease to fulfil the eligibility criteria, the net proceeds will be re-allocated to replacement projects that comply with the eligibility criteria as soon as reasonably practicable.

2.4 Reporting

On an annual basis, Shandong Hi-Speed Group will publish an allocation report and an impact report on its Eligible Green Projects, as detailed below. This reporting will be updated annually until full allocation of the net proceeds of any Green Financing Instrument issued, or until the Green Financing Instrument is no longer outstanding. Furthermore, additional reports are intended to be produced on a timely basis in case of material developments.

In the process of considering investments for allocation under the Green Financing Instruments, SDHS will discount the portion of the Eligible Green Projects that have been financed and/or refinanced by one or several other issuers under their respective Green or Sustainable Finance Frameworks to avoid the double counting issue.

2.4.1 Allocation Reporting

- a. List of Eligible Green Projects
- b. The amount of Proceeds allocated to each Eligible Green Project category
- c. Breakdown of the amount of Proceeds allocated to refinancing vs new financing
- d. When possible, descriptions of the Eligible Green Projects financed, such as project locations, amount allocated, etc.
- e. Selected examples of projects financed
- f. Amount of unallocated Proceeds

2.4.2 Impact Reporting

The SDHS will provide reporting on the environmental benefits of the Eligible Green Projects. Subject to data availability and confidentiality, impact reporting may cover the following impact reporting metrics listed below, and where available, taking reference from the relevant

indicators suggested in the ICMA Harmonized Framework for Impact Reporting⁶. In addition, calculation methodologies and key assumptions will be disclosed.

Eligible Green Project Categories	Impact Reporting Metrics
Renewable Energy	<ul style="list-style-type: none"> Capacity of renewable energy plant(s) constructed or rehabilitated in MW Annual renewable energy generation in MWh/GWh (electricity) and GJ/TJ (other energy) Annual GHG emissions reduced/avoided in tonnes of CO2 equivalent (where possible)
Clean Transportation	<ul style="list-style-type: none"> Number of electric vehicles acquired Number of charging stations installed Length of tracks built (km) Number of hydrogen filling stations installed Annual GHG emissions reduced (tCO2e)
Energy Efficiency	<ul style="list-style-type: none"> Estimated avoided GHG emissions (tCO2e) Expected energy saved (in MWh) Percentage annual energy efficiency gain relative to an established baseline
Green Buildings	<ul style="list-style-type: none"> Level of certification by property Energy efficiency gains in MWh or % vs. baseline Design or operating PUE Estimated avoided GHG emissions (tCO2e) Annual energy savings (MWh pa)

3. External Review

3.1 Second Party Opinion

Shandong Hi-Speed Group has appointed Moody's Ratings and Sustainable Fitch to assess this Green Finance Framework and its alignment with the GBPs and GLPs and issue a Second Party Opinion accordingly.

The Second Party Opinion will be made publicly available on the SDHS's official website: <https://www.sdhg.com.hk/en/>

3.2 Post Issuance External Verification

In order to provide timely and transparent information about the reporting of the funds from Green Financing Instruments issued under this Framework, the SDHS intends to engage a third-party reviewer to provide an annual assessment on the alignment of the allocation of funds with the Framework's criteria.

4. Amendments to this Framework

The GFWG will review this Framework on a regular basis, including its alignment to updated versions of the Principles as and when they are released, with the aim of adhering to best practices in the market. Such review may result in this Framework being updated and amended. The updates, if not minor in nature, will be subject to the prior approval of the SDHS and either Moody's Ratings or Sustainable Fitch or both. Any future updated version of this

⁶ <https://www.icmagroup.org/assets/documents/Sustainable-finance/2024-updates/Handbook-Harmonised-Framework-for-Impact-Reporting-June-2024.pdf>

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Framework that may exist will either keep or improve the current levels of transparency and reporting disclosures, including the corresponding review by an external reviewer. The updated Framework, if any, will be published on our website and will replace this Framework.

5. Appendix

Mapping to Multi-Jurisdiction Common Ground Taxonomy (“M-CGT”)

Eligible Project Category	Relevant M-CGT Category
Renewable Energy	C2.10 Manufacture of hydrogen D1.1 Electricity generation using solar photovoltaic technology D1.2 Electricity generation using concentrated solar power technology D1.3 Electricity generation using wind power D1.4 Electricity generation from ocean energy technologies D1.5 Electricity generation using hydropower D1.7 Electricity generation from geothermal energy D1.8 Storage of electricity
Clean Transportation	F2.1 Infrastructure enabling low-carbon road transport H1.1 Construction and operation of public transportation system in urban and rural areas H1.2 Construction and operation of rail freight transport and upgrade of existing railways
Energy Efficiency	F3.1 Green lighting upgrades

Mapping to Hong Kong Taxonomy for Sustainable Finance

Eligible Project Category	Relevant Hong Kong Taxonomy Identified Activity
Renewable Energy	Electricity, Gas, Steam and Air-conditioning Supply <ul style="list-style-type: none"> Electricity generation using concentrated solar power (CSP) technology Electricity generation using solar photovoltaic technology Electricity generation from wind power
Clean Transportation	Transportation and Storage <ul style="list-style-type: none"> Construction and operation of public transportation system in urban and rural areas Construction and operation of personal mobility devices, cycle logistics
Green Buildings	Construction <ul style="list-style-type: none"> Renovation of existing buildings Construction of new buildings



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