



聯合綠色發展
Lianhe Green Development

Report Type

Green Finance Framework
Second-Party Opinion

Analytical Standards

- » Green Bond Principles (GBP) (June 2021 Edition (with June 2022 Appendix 1))
- » Green Loan Principles (GLP) (March 2025 Edition)

Industry

Gas & Heat

Country/Region

China

Report Date

7th May 2025

Summary

Not Aligned	Aligned	Good	Excellent
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Pillar	Alignment
Use of Proceeds	Good
Process for Project Evaluation and Selection	Good
Management of Proceeds	Good
Reporting	Excellent
External Reviews	Good

Lianhe Green Development Company Limited (hereafter referred to as “Lianhe Green”) has reviewed a series of documents including the “Green Finance Framework” (hereafter referred to as “Framework”) issued by Jinan Energy Group Co., Ltd. (hereafter referred to as “the Company” or “the Group”), and assessed the company’s relevant work in respect of the Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds, Reporting, and External Reviews. The Framework has received an assessment opinion of “Good” from Lianhe Green. Lianhe Green considers that the Framework and the eligible green projects listed in the Framework are in compliance with the *Green Bond Principles (GBP) (June 2021 Edition (with June 2022 Appendix 1))* and the *Green Loan Principles (GLP) (March 2025 Edition)*. At the same time, Lianhe Green’s assessment includes the contributions of the project categories to the relevant United Nations Sustainable Development Goals¹.

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¹ According to the definitions of (A/RES/70/1 - Transforming our world: the 2030 Agenda for Sustainable Development)



About the Company

Company Materials

The Group is a large-scale wholly state-owned energy enterprise headquartered in Jinan, Shandong Province. The Group was formed with a strategic goal of building a national first-class energy service provider in order to attain a safe, green, intelligent and economic energy supply. Since its establishment, the Group has played a significant role in implementing the urban development plan of Jinan Municipal Government and has developed into a key force to optimise the energy supply and operation in Jinan.

Company Sustainability Strategy

Company Material

In line with the PRC government's "carbon neutrality" commitment by 2060 and in light of the increasing attention on the importance of environment protection, the Group established Jinan Energy Investment Holding Co., LTD in December 2020 with the intention to explore the opportunities in the new energy market in Jinan. The Group believes that the clean energy and new energy industries have great potential for future growth. The Group intends to utilise its heat and gas supply network and part of the technology in its heat supply and gas supply businesses to develop its new energy segment, which will complement the existing heat supply and gas supply businesses. The Group believes that the investment in the new energy segment would enable the Group to enhance the Group's competitiveness and achieve sustainable growth.

As so far, the Group is not aware of any environmental proceedings or investigations to which it is or might become a party.

Opinion of Lianhe Green

As a state-owned enterprise, the Group strictly follows the central and local government's policy of achieving carbon neutrality by 2060. The Group's operations encompass energy supply service with an intention to explore the opportunities in the new energy market in Jinan.

Based on the media review and the evidence obtained, nothing has come to Lianhe Green's attention that causes us to believe that the Group has any significant negative ESG news or controversial issues as of April 2025.

It is common market practice for issuers of sustainable financing instruments to disclose issuer-level environmental or social information, in accordance with globally accepted reporting frameworks (e.g., GRI or ISSB). However, the Group has not disclosed relevant information yet. However, the Group has published information about green energy and organization structure on their official website.

A. Use of Proceeds


Company Materials

An amount equivalent to net proceeds from each GFT will be used exclusively to finance and/or refinance, in whole or in part, new or existing assets and projects aligned with one or more of the following eligible categories ("Eligible Projects²"). Refinancing of Eligible Projects will have a look-back period of no longer than 24 months from the time of issuance. The Group is committed to fully allocate the net proceeds of each GFT on a best effort basis within 12 months of issuance.

² The Group may own Eligible Projects directly or indirectly through its subsidiaries.



Eligible Projects mean projects that fall within the categories stated below.

Eligible Project Category	Eligibility Criteria
<p>Energy Efficiency</p> 	<ul style="list-style-type: none"> Expenditures and investments related to design, construction, operation, and maintenance of energy-efficient facilities and infrastructure <ul style="list-style-type: none"> Reuse of industrial residual heat and steam for downstream production, limited to construction and operation of pipelines to collect waste heat and associated infrastructure for distributing heating Such as using at least 50% renewable energy or 50% waste heat or 75% cogenerated heat or 50% of a combination of such energy and heat <p>Environmental Objectives</p> <ul style="list-style-type: none"> climate change mitigation climate change adaption pollution prevention and control <p>Environmental Benefits</p> <ul style="list-style-type: none"> reduce GHG emissions

Opinion of Lianhe Green

Not Aligned	Aligned	Good	Excellent
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Lianhe Green, in accordance with the relevant assessment criteria, reviewed the Framework and other related documents, and the issuer's policies on Use of Proceeds.

After the assessment, Lianhe Green believes that the Group has clearly categorized the eligible projects into the listed categories of GBP and GLP. As a state-owned company, all the Group's projects are all located in China. The eligible green project categories align with *China's Green Bond Endorsed Projects Catalogue (2021 Edition)* and are eligible for the *EU Taxonomy*.

The environmental benefits of the eligible green category are clear and its contribution to UNSDGs is clearly stated. The Group also referenced the GBP and clearly outlined the environmental objectives of the eligible green categories. Detailed analysis will be elaborated in the following paragraphs.

Through communication, the proportion of proceeds to be used for refinancing will be 100%. A maximum 2-year look-back period would be applied on refinanced projects, which is longer than the market best practice.

Lianhe Green's assessment of the Group's Use of Proceeds is "Good".

1) Eligible Green Projects: Energy Efficiency

Eligible Green Project Categories Under Principles

Lianhe Green considers that this project category under the Framework is most relevant to the eligible Green Projects Category "Energy efficiency (such as in new and refurbished buildings, energy storage, district heating, smart grids, appliances and products)" under GBP and "Energy



efficiency (such as in new and refurbished buildings, district heating, smart grids, appliances and products)” under GLP.

Alignment with *Green Bond Endorsed Project Catalogue (2021 Edition)*, *Hong Kong Taxonomy for Sustainable Finance* and *EU Taxonomy*

Lianhe Green believes the Framework’s descriptions on “Reuse of industrial residual heat and steam for downstream production” and “using at least 50% renewable energy or 50% waste heat or 75% cogenerated heat or 50% of a combination of such energy and heat” are aligned with the description of “5.1.1.1 Operation and Upgrade of Cleaning construction of Urban Central Heating Systems” under *Green Bond Endorsed Project Catalogue (2021 Edition)*, which includes the “Construction of urban centralized heating facilities using low-grade industrial waste heat sources, combined heat and power heat sources, or clean energy sources such as electricity and natural gas to replace loose coal and decentralized coal-fired boilers to meet the requirements of clean heating in the construction of urban centralized heating facilities; and energy-saving and environmental protection technological transformation of central heating facilities such as centralized heating boilers and heating pipeline networks in cities and towns”.

The *Hong Kong Taxonomy* currently does not cover activities related to the construction of centralized heating systems using clean energy. However, Lianhe Green has assessed that this category of eligible Green Projects in the Framework is aligned with and positively contributes to the “District heating/cooling distribution” activity defined in the *EU Taxonomy*. The description “using at least 50% renewable energy or 50% waste heat or 75% cogenerated heat or 50% of a combination of such energy and heat” is aligned with the substantial contribution criteria.

Relevant Key United Nations Sustainable Development Goals

Lianhe Green believes this eligible Green Project Category contributes positively to the United Nations Sustainable Development Goals (UNSDGs), in particular, it makes significant contributions to Target 7.3 of Goal 7 (Affordable and Clean Energy) “By 2030, double the global rate of improvement in energy efficiency” and Target 13.1 of Goal 13 (Climate Action) “Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries”.

Environmental Benefits

According to [IEA](#), energy efficiency is called the “first fuel” in clean energy transitions, as it provides some of the quickest and most cost-effective CO₂ mitigation options while lowering energy bills and strengthening energy security. Energy efficiency is the single largest measure to avoid energy demand in the Net Zero Emissions by 2050 (NZE) Scenario.

Currently, China’s heating sector primarily relies on coal-fired cogeneration plants and coal-fired boilers, as well as natural gas boilers and a small number of gas-fired cogeneration units. To achieve the twin goals of carbon peak and carbon neutrality, it is necessary to transform heating methods and reduce dependence on fossil fuels. Jinan’s energy consumption structure is predominantly coal-based, with low efficiency in coal energy conversion and high carbon emission intensity, making it the primary factor leading to air pollution in the city.

In March 2023, the Shandong Provincial Energy Bureau released the [Three-Year Action Plan for Green, Low-Carbon, and High-Quality Development of Shandong’s Energy Sector \(2023-2025\)](#) and the [Key Tasks for Green, Low-Carbon, and High-Quality Development of Shandong’s Energy Sector in 2023](#). These documents aim to significantly optimizing the energy structure. By 2025, Shandong Province plans to increase its renewable energy capacity to over 90 million kilowatts, raise the proportion of non-fossil energy consumption to around 13%, and reduce the share of coal power in both total installed capacity and overall electricity consumption.

The Group committed in the Framework that the proceeds will be used in reuse of industrial residual heat and steam and energy-efficient facilities and infrastructure using at least 50% renewable energy or 50% waste heat or 75% cogenerated heat or 50% of a combination of such energy and heat. The areas surrounding Jinan are rich in waste heat resources from coal-fired power plants, which can



fully serve as the main heat source for winter heating. This waste heat generally has higher temperatures compared to heat extracted from air, geothermal sources, or other environmental mediums, along with significantly greater heat density. As a result, waste heat collection offers outstanding advantages in terms of both heat efficiency and economic feasibility.

Lianhe Green believes that, this eligible green project category will effectively reduce the GHG emission of Jinan City by optimizing the energy structure and improving energy efficiency. It will contribute to environmental objectives — climate change mitigation, climate change adaption and pollution prevention and control.

B. Process for Project Evaluation and Selection

Company Materials

The evaluation and selection process ensures that an amount equivalent to net proceeds from each GFT will be allocated to projects that meet the Eligibility Project Criteria set out in the Use of Proceeds under the Framework. The Group has established a Green Financing Team (the “Team”) which governs the process, consisting of representatives and senior members from the Investment and Development Department and Financing Management Department. The Team will meet on an annual basis and is responsible for:

- Evaluating the compliance of projects with the Eligibility Criteria outlined in the Use of Proceeds under the Framework;
- Approving the inclusion of pre-selected Eligible Projects in Green Project List (the Team has full discretion to object the inclusion of any project);
- Monitoring and managing the Green Project List. The Team will maintain a register to keep track of the use of net proceeds of the GFTs through the internal information system on an annual basis;
- Replacing projects that no longer meet the Eligibility Criteria or reallocating divestment proceeds to Eligible Projects;
- Observing developments in the green financing markets and approving updates to this Framework accordingly to reflect relevant changes in our corporate strategy or market developments.

Opinion of Lianhe Green

Not Aligned	Aligned	Good	Excellent
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Lianhe Green, in accordance with the relevant assessment criteria, reviewed the Framework and other related documents, and the issuer’s policies on Process for Project Evaluation and Selection.

The Group has established a Green Financing Team to govern the project evaluation and selection projects. The potential eligible projects will be pre-selected and then monitored by the Team, consisting of representatives and senior members from 2 departments. After review of the documents collected, Lianhe Green noticed that the Group will engage technical person to identify mitigation measures against environmental risks.

Lianhe Green’s assessment of the Group’s Process for Project Evaluation and Selection is “Good”.

C. Management of Proceeds

Company Materials



Net proceeds or the equivalent amount of the net proceeds of the GFTs will be deposited in the general account, which will then be earmarked for allocation to the Eligible Projects in accordance with the Framework. Net proceeds of each GFT awaiting allocation will be held in accordance with the Group's normal liquidity management policy. The Team will track the allocation of net proceeds from the issuance of any GFTs to Eligible Projects.

The Team will maintain a register to keep track of the use of an amount equivalent to net proceeds of each GFT through the internal information system, and the Team will review the Green Project List annually. If any of the Eligible Projects cease to fulfil requirements of Use of Proceeds under the Framework, the Team will identify other projects that comply with the Framework and re-allocate to those assets as soon as practicable. The balance of the tracked net proceeds will be on a best-effort basis annually adjusted to match allocations to Eligible Projects made while the GFT(s) remain outstanding.

The register will contain the following information:

Type of Funding Transaction: Key information including the issuer/borrower entity, transaction date, principal amount, repayment or amortization profile, maturity date, interest or coupon, and the ISIN number.

Pending full allocation, unallocated proceeds will be:

- held in temporary investment instruments that are assets with high liquidity and safety such as cash or cash equivalent instruments; or
- held in temporary placements that do not include projects, assets or activities that are inconsistent with the nature of a green debt instrument.

The Group commits not to invest unallocated proceeds to high pollution activities or ineligible projects. The following sectors and activities will be excluded from Eligible Projects:

- activities that violate national laws and regulations, international conventions and agreements, or are subject to international bans and sanctions;
- production or trade of weapons and ammunition;
- production or trade of alcoholic beverages (except for beer and wine);
- production or trade of tobacco;
- enterprises engaged in gambling or casino operations or similar businesses;
- production or trade of radioactive materials (excluding equipment which radioactive source is considered insignificant and/or adequately shielded, for example, quality control equipment); or
- production or activities involving harmful or exploitative forced labour or harmful child labour.

Opinion of Lianhe Green

Not Aligned	Aligned	Good	Excellent
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Lianhe Green, in accordance with the relevant assessment criteria, reviewed the Framework and other related documents, and the issuer's policies on Management of Proceeds.

The proceeds of each of the Group's GFT will be deposited in the general account, which will then be earmarked for allocation to the Eligible Projects. Green Financing Team will maintain a register to keep track of the use of an amount equivalent to net proceeds of each GFT. If any of the Eligible Projects cease to fulfil requirements of Use of Proceeds under the Framework, the Team will re-allocate the proceed into other eligible projects. The unallocated proceeds will be held in temporary investment instruments that are assets with high liquidity and safety. The Group also declares that the proceeds will not be used for 7 purposes and disclose the exclusion list in the Framework.



Lianhe Green's assessment of the Group's Management of Proceeds is "Good".

D. Reporting

Company Materials

The Group will provide information on the allocation of the net proceeds or equivalent amount of the net proceeds of the GFTs via the website, social media, or report. Such information will be updated on an annual basis until all the net proceeds of the GFTs have been fully allocated.

Allocation Report should contain the following information:

- Amount of allocated proceeds by Eligible Project Category, with a brief description of Eligible Projects;
- The remaining balance of funds which have not yet been allocated;
- Share of financing vs. refinancing

Where possible, the Group will report on the environmental impacts associated with the Eligible Projects.

Impact Report may contain, on a best-effort basis and subject to data availability, such as but not limited to the following information:

Eligible Project Categories	Impact Indicators ³
Energy Efficiency	<ul style="list-style-type: none">• Annual greenhouse gas emissions reduced/avoided (tonne of CO₂ equivalent)• Annual energy savings (MWh/GWh)

Opinion of Lianhe Green

Not Aligned	Aligned	Good	Excellent
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Lianhe Green has reviewed a series of documents, including the Framework and the company's policy based on the relevant assessment criteria.

The Group will provide green project category level disclosure reports annually until the proceeds of the GFTs have been fully allocated, and will also issue impact report on a best-effort basis. Besides, the Group will report on the environmental benefits of the Eligible Green Projects potentially with the environmental impact indicators recommended by the ICMA as core metrics.

Lianhe Green's assessment of the Group's Reporting is "Excellent".

E. External Reviews

Company Materials

³ Appropriate environmental impact indicators will be determined in reference to frameworks and resources published by ICMA, such as the Harmonized Framework for Impact Reporting June 2021.



The Group has engaged Lianhe Green, an independent third party, to review and to issue an independent Second Party Opinion on the Framework's alignment with GBP and GLP.

An independent third party may be engaged to review and verify the internal tracking and allocation of funds from the GFTs to Eligible Green Projects, as well as the Eligible Projects expected and actual impact that is disclosed in the Annual Reporting.

Opinion of Lianhe Green

Not Aligned	Aligned	Good	Excellent
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The company has engaged Lianhe Green to assess the compliance of this Framework with relevant international and domestic standards and to issue a second-party assessment opinion. An independent third party may be engaged to review and verify the internal tracking and allocation of funds from the GFTs to eligible green projects, as well as the Eligible Projects expected and actual impact that is disclosed in the Group's annual reporting.

Considering that, post issuance, ICMA recommends that an issuer's management of proceeds be supplemented by the use of an external auditor, or other third party, to verify the internal tracking and the allocation of funds from the proceeds to Eligible Projects. Lianhe Green's assessment of the Group's management system for External Reviews is "Good".



Appendix

About Lianhe Green

Lianhe Green Development Company Limited (hereafter referred to as “Lianhe Green”) was established in 2023 and is a subsidiary of Lianhe Equator Environmental Assessment Co., Ltd. (hereafter referred to as “Lianhe Equator”) and Lianhe Credit Management Co., Ltd. (hereafter referred to as “Lianhe Group”). Lianhe Equator is the largest green and sustainable bond/loan certification provider in mainland China. As an external reviewer recognised under the Hong Kong Monetary Authority’s Green and Sustainable Finance Grant Scheme, Lianhe Green is headquartered in Hong Kong, mainly responsible for green and sustainable finance certification business in international markets, ESG reporting and consulting, ESG training services, and assist in operating carbon market-related businesses within and outside China.

Lianhe Green aims to become an internationally recognized external verifier for sustainable finance through cooperation with Lianhe Equator’s professional and experienced team in this industry. With a goal of “shaping the origin of the earth and sky, and transmitting the civilization of mankind”, Lianhe Green is committed to helping Chinese and foreign enterprises demonstrate their determination in sustainable development, and providing investors with independent and objective third-party certification services. It is our mission to leave green and oceans to our future generations.

Scope of Analysis

Lianhe Green was engaged by the Group to provide an assessment of the company’s Green Finance Framework. The assessment is to provide a professional second-party opinion of the compliance of the Green Finance Framework and does not provide any financial indicators or judgement on the investment values of the company’s issuance.

Responsibilities

The Company

The Group’s responsibilities are to accept the interviews from Lianhe Green’s analytical team, to provide relevant data and institutional documents for the analysis, and to ensure that the data and institutional documents provided are true and effective.

External Reviewer

Lianhe Green’s responsibilities are to collect data and documents provided by the Group. Lianhe Green will review all important data and documents, and issue conclusions. In addition, Lianhe Green will disclose information collected from the Group and relevant parties to demonstrate whether its Green Finance Framework meets the relevant requirements of the above standards.

In this Second-Party Opinion, Lianhe Green has specifically examined the Framework but has not reviewed any transaction-specific legal documents or marketing materials. Nevertheless, the framework does provide a description of the qualifying projects as described.

Analytical Process

The main aspects of this assessment include the following:

- » Performing a comprehensive review on the persons in charge of the relevant departments to understand the key matters related to the Group’s policies and processes;
- » Review the Green Finance Framework developed by the Group;
- » Review relevant disclosure reports;
- » Obtain and review appropriate supporting documentation to support key findings.

Solicitation Status



The Second-Party Opinion was solicited and assigned or maintained by Lianhe Green at the request of the company.

Disclaimer

A Lianhe Green SPO is an assessment of the green and sustainable financing frameworks of entities. It is not a credit rating.

Please note that individuals identified in an SPO report are not responsible for the opinions stated therein and are named for contact purposes only. Our report is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of financial instruments and securities.

Lianhe Green receives compensation from entities and other market participants for conducting this service. None of the aforementioned entities nor its related parties participated in the review process aside from providing information requested by Lianhe Green.

Our assessments are not considered investment advice and they are not and should not be considered as a replacement of any person's own assessment of the ESG factors related to a financial instrument or an entity. Lianhe Green does not represent, warrant or guarantee that our report will fulfill any of your or any other person's particular purposes or needs. Lianhe Green does not recommend the purchase or sale of financial instruments or securities or give investment advice or provide any legal, auditing, accounting, appraisal or actuarial services.

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