

Second Party-Opinion

Tianjin Rail Transit Group Co., Ltd.

Green Bond

Evaluation Summary

Sustainalytics is of the opinion that the Tianjin Rail Transit Group Co., Ltd. (TRT) Green Bond Framework is credible and impactful, and aligns with the four pillars of the Green Bond Principles 2017 (GBP). Some of the key considerations of this assessment are:



USE OF PROCEEDS Low-carbon transportation, pollution prevention (particularly reduction of air emissions), energy efficiency, and renewable energy are recognized by the GBP as eligible categories.



PROJECT EVALUATION / SELECTION Projects will be selected based on compliance with the eligibility criteria by TRT's dedicated Green Bond Working Group (GBWG). This is in line with market practice.



MANAGEMENT OF PROCEEDS The TRT Green Bond Framework has a transparent earmarking process for the management of proceeds which includes a Green Bonds Register. This is in line with market practice.



REPORTING TRT will publish an annual green bond report, and its allocation reporting is in line with market expectations. TRT has also committed to impact reporting annually, which is in line with market practice.

Evaluation date	February 2018
Issuer Location	China

Report Sections

Introduction	2
Sustainalytics' Opinion	2
Appendices	6

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Introduction

Tianjin Rail Transit Group Co., Ltd. (TRT), a company that provides transportation infrastructure and construction services, has developed a green bond framework (TRT Green Bond Framework) under which it plans to issue green bonds and use the proceeds to finance or refinance expenditures related to low-carbon transportation, pollution prevention, energy efficiency in systems, products, and technology associated with low-carbon transportation systems and renewable energy. TRT has engaged Sustainalytics to provide a second-party opinion on its framework and the framework's environmental credentials. As part of this engagement, Sustainalytics held conversations with various members of TRT's management team to understand the sustainability impact of their business processes and planned use of proceeds, as well as management of proceeds and reporting aspects of the TRT Green Bond Framework. Sustainalytics also reviewed relevant public documents and non-public information.

This document contains Sustainalytics' opinion on the TRT Green Bond Framework and should be read in conjunction with the framework document.

Sustainalytics' Opinion

Section 1: Sustainalytics' Opinion on the TRT Green Bond Framework

Summary

Overall, Sustainalytics is of the opinion that the TRT Green Bond Framework is credible and transparent, and aligns with the four pillars of the Green Bond Principles 2017 (GBP). Some key considerations of TRT Green Bond Framework include:

- Low-carbon transportation, pollution prevention (particularly reduction of air emissions), energy efficiency, and renewable energy are recognized by the GBP as eligible categories.
- While Sustainalytics recognizes that prevention of noise pollution can be considered to have clearer links to health and social impacts, noise pollution is often classified as an environmental issue in China. Given the contextual relevance of noise pollution as an environmental issue in China, projects related to noise pollution have been included under TRT's eligibility criteria.
- Sustainalytics encourages TRT to formalize its commitment to low-carbon transportation through policies and targets to reduce CO₂ emissions that are publicly disclosed.
- The TRT Green Bond Framework has a transparent earmarking process for the management of proceeds which includes a Green Bonds Register.
- Sustainalytics is of the opinion that TRT's impact reporting could be strengthened by reporting on the amount of CO₂-equivalent avoided. This metric is considered to be market best practice. TRT has confirmed to Sustainalytics that it will initiate an internal process to engage with external experts to look into CO₂ reporting, and Sustainalytics views this initiative positively.

Alignment with Green Bond Principles 2017:

Sustainalytics has determined that the TRT Green Bond Framework aligns with the four pillars of the Green Bond Principles 2017. For detailed information please refer to Appendix 1: Green Bond/Green Bond Programme External Review Form.

Section 2: Sustainability Strategy of the Issuer

Contribution of framework to issuer's sustainability strategy

In light of the current guidance from the State Council and the '13th Five - Year Plan' for environmental protection and development of low-carbon economy, TRT has confirmed to Sustainalytics that it is committed to ensuring that its economic performance is beneficial to the environment and society.

Sustainalytics encourages TRT to formalize this commitment through policies and targets that are publicly disclosed.

Tianjin Rail Transit Group Co., Ltd. (TRT) Green Bond

Well positioned to address common environmental and social risks associated with the projects

Sustainalytics recognizes that the development of rail and transit infrastructure in emerging markets such as China is exposed to specific challenges. Rail and transit construction projects in China are criticized for causing ecological destruction, introducing noise and dust pollution, water pollution from improper waste management, and worker safety incidents.

After reviewing TRT's internal documents and policies, Sustainalytics is of the opinion that Tianjin Rail Transit has a robust internal environmental and social risk assessment process that mitigates these concerns. The robustness of this risk assessment process stems from Tianjin Rail Transit Group's policies and systems that address the specific concerns:

- TRT conforms to various industrial quality control standards such as ISO9001 Quality Management, OHSAS18001 Health and Safety Management.
- TRT has set up an environmental protection management system to address concerns surrounding the construction projects. This management system includes an emergency action plan. The system sets pollutants discharge ceilings for various pollutants, including carbon-dioxide and nitrogen. TRT has also included a list of the government regulations this project must comply with, which cover issues such as air emissions, noise, vibration, water, waste, smoke, odor pollutants.
- Ecological Protection: TRT does not allow for temporary construction projects on permanent ecologically protected land.
- Noise Pollution: TRT confirms that construction sites near environmentally sensitive areas will be enclosed, and sound barriers will be constructed around the construction areas. The construction teams will coordinate with affected local communities to set reasonable construction hours. When night construction is necessary, permission from local governments will be obtained in advance, and local communities will be notified of these schedules.
- Dust Pollution Management: TRT's environmental management documents state that dust pollution control performance measures are an important basis for contractor selection and evaluation. Other measures to manage dust pollution include enclosed construction areas with high walls, active water spraying, ground hardening treatments for material placement sites, site coverage and greening, centralized ground stacking and solidification. On-site mixing of concrete will also be prohibited to further reduce dust pollution. In addition, when an emergency weather response of level three or higher is announced for heavy pollution, construction work will be halted in response.
- Water Pollution and Construction Waste Management: The dumping of construction waste and pollutants produced during construction into nearby rivers and waters is strictly prohibited. Construction wastewater and sewage will be pre-treated before transport or discharged into the municipal sewage pipe network. Wastewater from operations will be recycled to be used for washing needs. Scrap metal and other materials will be recycled while hazardous waste will be handle by qualified contractors.
- Worker Safety: TRT will leverage their 'Safety Quality Department' to oversee the construction project and to ensure that proper worker safety measures are in place and being upheld. TRT will also set up a dedicated construction safety management fund to help manage worker safety issues.

In addition to the environmental management practices described above, TRT's project selection process states a commitment to review environmental impact assessments for all proposed eligible projects, before a final decision is made to select these projects for funding through green bond proceeds.

Based on Sustainalytics' review of the environmental protection management systems, and the inclusion of environmental risk assessment in the project selection process, Sustainalytics believes that TRT is prepared to manage environmental, social, and regulatory risks associated with the rail construction project.

Section 3: Impact of Use of Proceeds

Impact of low-carbon transportation in mitigating climate change in China

While China is the world's largest emitter of CO₂,¹ the country is proactively taking steps to mitigate its contribution to climate change. In addition to its commitment to reduce the carbon intensity of GDB by 60%–65% below 2005 levels by 2030² under the Paris Agreement, China published its 13th Five-Year Plan (covering 2016–2020), which sets out targets to develop a sustainable society and economy. The targets include challenges such as climate change, air pollution, water, urbanization, transportation and other issues on sustainability³ and aim to contribute to the China's commitments for the Paris Agreement. Specially, with respect to transportation, the plan promotes low-carbon, transportation services, adopting the application of modern transportation equipment and energy-efficient means of transport,⁴ and encouraging market-based reform to railway sector.

As such, low-carbon transportation is an important environmental issue for China, and plays an important role in contributing to China's commitments to mitigate climate change.

Importance of energy efficiency and pollution reduction in mitigating climate change in China

The Tianjin railway is an important and highly utilized transportation infrastructure development that connects the capital city of Beijing and the large metropolis of Tianjin. The railway accommodates over 88 million riders a year.⁵

China currently sources over 64% of all its power from coal, a figure that the country aims to reduce to 55% by 2020. Further efforts to improve the share of low-carbon power in the country's energy mix have seen this share increase from 17.9% to 19.5% in 2016.⁶ These goals, in addition to numerous other targets, are included in the publication of China's 13th Five-Year Plan.

This plan sets out targets for the period 2016–2020 to make progress toward a sustainable society and economy, including objectives for environmental protection in addition to infrastructure targets. By 2020 this plan aims to reduce total estimated consumption of primary energy to less than 5 billion tons of standard coal, reduce energy consumption per unit of GDP by 15%, to reduce CO₂ emissions per unit of GDP by between 40% and 45%⁷, to construct 3,000 km of new urban rail lines, and to expand the nation's high-speed rail network by 50% in order to cover 80% of all major metropolitan areas and cities.⁸ These goals outlined in this plan provide major opportunities for transportation infrastructure development and energy-efficient green technological development. Tianjin Rail Transit Group plans to address these goals through the design, manufacture, and installation of systems and technologies that reduce consumption and increase efficiency of their railways and transit networks. Tianjin plans to improve their energy efficiency and mitigate GHG emissions in their railway construction and operations.⁹

¹ Analysis: What global emissions in 2016 mean for climate change goals, Carbon Brief

<https://www.carbonbrief.org/what-global-co2-emissions-2016-mean-climate-change>

² China, Climate Action Tracker

<http://climateactiontracker.org/countries/china.html>

³ The 13TH Five-Year Plan for Economic and Social Development of the People's Republic of China (2016–2020), Central Compilation & Translation Press, <http://en.ndrc.gov.cn/newsrelease/201612/P020161207645765233498.pdf>

⁴ The 13TH Five-Year Plan for Economic and Social Development of the People's Republic of China (2016–2020), Central Compilation & Translation Press

<http://en.ndrc.gov.cn/newsrelease/201612/P020161207645765233498.pdf>

⁵ China's High-Speed Program Back on Track

<http://www.railjournal.com/index.php/high-speed/chinas-high-speed-programme-back-on-track.html>

⁶ China energy efficiency improved in 2016

<http://www.climatechangenews.com/2017/01/30/china-energy-efficiency-improved-in-2016-reports-xinhua/>

⁷ China's 13th Five Year Plan: Environment

<http://www.kwm.com/en/us/knowledge/insights/china-13th-5-year-plan-environment-sustainability-initiatives-2016041>

⁸ China's 13th Five Year Plan: Infrastructure

<http://www.kwm.com/en/us/knowledge/insights/china-13th-5-year-plan-infrastructure-projects-rail-airports-roads-20160414>

⁹ China's 13th Five Year Plan: Infrastructure

<http://www.kwm.com/en/us/knowledge/insights/china-13th-5-year-plan-infrastructure-projects-rail-airports-roads-20160414>

Alignment with/contribution to SDGs

The Sustainable Development Goals (SDGs) were set in September 2015 and form an agenda for achieving sustainable development by the year 2030. In Sustainalytics' view, the TRT Green Bond Framework advances the following SDG goals and targets:

Use of Proceeds Category	SDG	SDG target
Low Carbon Transportation	9. Industry, Innovation, and Infrastructure	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.
Low Carbon Transportation	11. Sustainable Cities and Communities	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.
Renewable Energy	7. Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix.

Conclusion

Sustainalytics is of the opinion that TRT's planned use of proceeds will create positive impact as low-carbon transportation, pollution prevention (particularly reduction of air emissions), energy efficiency, and renewable energy are recognized by the GBP as eligible categories. Furthermore, TRT's project selection and management of proceeds processes are aligned with market practice. TRT has also committed to allocation and impact reporting on an annual basis. Based on the above, Sustainalytics is confident that the TRT Green Bond Framework aligns to the four pillars of the Green Bond Principles.

Appendices

Green Bond / Green Bond Programme - External Review Form Section 1. Basic Information

Issuer name:	Tianjin Rail Transit Group Co., Ltd. (TRT)
Green Bond ISIN or Issuer Green Bond Framework Name, if applicable: <i>[specify as appropriate]</i>	
Review provider's name:	Sustainalytics
Completion date of this form:	February 2018
Publication date of review publication: <i>[where appropriate, specify if it is an update and add reference to earlier relevant review]</i>	February 2018

Section 2. Review overview

SCOPE OF REVIEW

The following may be used or adapted, where appropriate, to summarize the scope of the review.

The review assessed the following elements and confirmed their alignment with the GBPs:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Use of Proceeds | <input checked="" type="checkbox"/> Process for Project Evaluation and Selection |
| <input checked="" type="checkbox"/> Management of Proceeds | <input checked="" type="checkbox"/> Reporting |

ROLE(S) OF REVIEW PROVIDER

- | | |
|---|--|
| <input checked="" type="checkbox"/> Consultancy (incl. 2 nd opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification | <input type="checkbox"/> Rating |
| <input type="checkbox"/> Other <i>(please specify)</i> : | |

Note: In case of multiple reviews / different providers, please provide separate forms for each review.

EXECUTIVE SUMMARY OF REVIEW and/or LINK TO FULL REVIEW (if applicable)

Please refer to TRT Green Bond Framework and Second-Party Opinion document above.

Section 3. Detailed review

Reviewers are encouraged to provide the information below to the extent possible and use the comment section to explain the scope of their review.

1. USE OF PROCEEDS

Overall comment on section (if applicable):

TRT Green Bond proceeds will be used to finance or refinance expenditures related to low-carbon transportation; pollution prevention; energy efficiency in systems, products, and technology associated with low-carbon transportation systems; and renewable energy.

Sustainalytics is of the opinion that these project categories are clearly recognized by the Green Bond Principles 2017 as impactful.

Use of proceeds categories as per GBP:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Renewable energy | <input checked="" type="checkbox"/> Energy efficiency |
| <input checked="" type="checkbox"/> Pollution prevention and control | <input type="checkbox"/> Environmentally sustainable management of living natural resources and land use |
| <input type="checkbox"/> Terrestrial and aquatic biodiversity conservation | <input checked="" type="checkbox"/> Clean transportation |
| <input type="checkbox"/> Sustainable water and wastewater management | <input type="checkbox"/> Climate change adaptation |
| <input type="checkbox"/> Eco-efficient and/or circular economy adapted products, production technologies and processes | <input type="checkbox"/> Green buildings |
| <input type="checkbox"/> Unknown at issuance but currently expected to conform with GBP categories, or other eligible areas not yet stated in GBPs | <input type="checkbox"/> Other (please specify): |

If applicable please specify the environmental taxonomy, if other than GBPs:

2. PROCESS FOR PROJECT EVALUATION AND SELECTION

Overall comment on section (if applicable):

Projects will be proposed for funding through the TRT Green Bond by the Planning Department according to feasibility studies and environmental assessment, and according to the project categories and example projects described in the TRT Green Bond Framework.

They will then be reviewed by a dedicated Green Bond Working Group ("GBWG"), which includes:

- Finance Centre and its related Financing Department and Treasury Department
- Investment Management Department
- Operations Department

The GBWG will approve, annually, the projects complying with the eligibility criteria and falling under one or more of the use of proceeds projects categories outlined above. It will then be reviewed and approved by the General Manager and the senior management team of TRT.

Sustainalytics is of the opinion that this is in line with market norms.

Evaluation and selection

- | | |
|--|---|
| <input checked="" type="checkbox"/> Defined and transparent criteria for projects eligible for Green Bond proceeds | <input checked="" type="checkbox"/> Documented process to determine that projects fit within defined categories |
| <input checked="" type="checkbox"/> Summary criteria for project evaluation and selection publicly available | <input type="checkbox"/> Other (<i>please specify</i>): |

Information on Responsibilities and Accountability

- | | |
|--|---|
| <input checked="" type="checkbox"/> Evaluation / Selection criteria subject to external advice or verification | <input checked="" type="checkbox"/> In-house assessment |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

3. MANAGEMENT OF PROCEEDS

Overall comment on section (*if applicable*):

The proceeds of each TRT Green Bond will be deposited in the general funding accounts and “earmarked” pending allocation. TRT will maintain a Green Bond Register to track the use of proceeds for the green bond issuance. Green Bond Allocation Register will be established to record the allocation of green bond proceeds.

The Register will contain, for each Green Bond issued, information including:

1. Green Bond details: ISIN, pricing date, maturity date, etc.
2. Eligible Green Project allocation list: information including:
 - Confirmation of investment made are to Eligible Green Projects
 - Description of investment
 - Investment amount
 - Other necessary information so that the aggregate of issuance proceeds allocated to eligible projects is recorded at all times

TRT commits to deploying Green Bond proceeds to eligible projects within a short timeframe. A small amount of issuance proceeds not allocated to Eligible Green Projects will be held in accordance with TRT's normal liquidity management policy, such as Notice Deposits.

Sustainalytics is of the opinion that this is in line with market norms.

Tracking of proceeds:

- ☒ Green Bond proceeds segregated or tracked by the issuer in an appropriate manner

Tianjin Rail Transit Group Co., Ltd. (TRT) Green Bond

- ☒ Disclosure of intended types of temporary investment instruments for unallocated proceeds
- ☐ Other (*please specify*):

Additional disclosure:

- | | |
|--|---|
| <input type="checkbox"/> Allocations to future investments only | <input checked="" type="checkbox"/> Allocations to both existing and future investments |
| <input type="checkbox"/> Allocation to individual disbursements | <input type="checkbox"/> Allocation to a portfolio of disbursements |
| <input type="checkbox"/> Disclosure of portfolio balance of unallocated proceeds | <input type="checkbox"/> Other (<i>please specify</i>): |

4. REPORTING

Overall comment on section (if applicable):

Allocation reporting

TRT commits to publish an annual Green Bond Report, which will provide information on amounts equal to the net proceeds of the Green Bond issued and provide:

- (i) aggregate amount allocated to the various Eligible Green Project Categories
- (ii) remaining balance of funds which have not yet been allocated
- (iii) examples of Green Projects from each Eligible Green Projects (subject to confidentiality disclosures)

Furthermore, TRT will confirm that the use of proceeds of the Green bond issuance conforms to this Green Bond Framework. The GBWG will also review the allocation of the proceeds annually to ensure maximum allocation of green bond proceeds and facilitate ongoing green bond reporting.

Impact reporting

TRT has committed to reporting on certain impact indicators, such as installed renewable energy production capacity, kms of tracks built, etc. For a full list of indicators, please see the TRT Green Bond Framework. TRT has also committed to kick-starting an internal process to assess the feasibility of reporting quantitative impact indicators (like amount of CO₂ equivalent avoided) to investors. Sustainalytics views this commitment positively, and encourages TRT to report on market best practice impact indicators.

Use of proceeds reporting:

- | | |
|--|--|
| <input type="checkbox"/> Project-by-project | <input checked="" type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other (<i>please specify</i>): |

Information reported:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Allocated amounts | <input checked="" type="checkbox"/> Green Bond financed share of total investment |
|---|---|

☐ Other (please specify):

Frequency:

☒ Annual

☐ Semi-annual

☐ Other (please specify):

Impact reporting:

☐ Project-by-project

☒ On a project portfolio basis

☐ Linkage to individual bond(s)

☐ Other (please specify):

Frequency:

☒ Annual

☐ Semi-annual

☐ Other (please specify):

Information reported (expected or ex-post):

☐ GHG Emissions / Savings

☒ Energy Savings

☒ Other ESG indicators (please specify): See TRT Green Bond Framework for a full list of indicators.

Means of Disclosure

☐ Information published in financial report

☐ Information published in sustainability report

☐ Information published in ad hoc documents

☐ Other (please specify):

☐ Reporting reviewed (if yes, please specify which parts of the reporting are subject to external review):

Where appropriate, please specify name and date of publication in the useful links section.

USEFUL LINKS (e.g. to review provider methodology or credentials, to issuer's documentation, etc.)

SPECIFY OTHER EXTERNAL REVIEWS AVAILABLE, IF APPROPRIATE

Type(s) of Review provided:

☐ Consultancy (incl. 2nd opinion)

☐ Certification

☐ Verification / Audit

☐ Rating

☐ Other (please specify):

Review provider(s):

Date of publication:

ABOUT ROLE(S) OF REVIEW PROVIDERS AS DEFINED BY THE GBP

- i. **Consultant Review:** An issuer can seek advice from consultants and/or institutions with recognized expertise in environmental sustainability or other aspects of the issuance of a Green Bond, such as the establishment/review of an issuer's Green Bond framework. "Second Party Opinions" may fall into this category.
- ii. **Verification:** An issuer can have its Green Bond, associated Green Bond framework, or underlying assets independently verified by qualified parties, such as auditors. In contrast to certification, verification may focus on alignment with internal standards or claims made by the issuer. Evaluation of the environmentally sustainable features of underlying assets may be termed verification and may reference external criteria.
- iii. **Certification:** An issuer can have its Green Bond or associated Green Bond framework or Use of Proceeds certified against an external green assessment standard. An assessment standard defines criteria, and alignment with such criteria is tested by qualified third parties / certifiers.
- iv. **Rating:** An issuer can have its Green Bond or associated Green Bond framework rated by qualified third parties, such as specialized research providers or rating agencies. Green Bond ratings are separate from an issuer's ESG rating as they typically apply to individual securities or Green Bond frameworks / programs.

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Sustainalytics

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For more information, visit www.sustainalytics.com

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