



Impact Report for Sustainability Bond



Introduction

BEM is committed to operate its businesses with particular emphasis on the society and environment in pursuit of the Company's sustainable business growth. As such, BEM has developed Sustainable Financing Framework as the guideline to finance and/or refinance projects (or assets) which extend benefit to environment and/or society.

Sustainable Financing Framework

The Sustainable Financing Framework ('the Framework') is established in alignment with the Green Bond Principles ("GBP"), Social Bond Principles ("SBP") and Sustainability Bond Guidelines ("SBG"), issued by the International Capital Market Association (ICMA); and the ASEAN Green Bond Standards ("GBS"), ASEAN Social Bond Standards ("SBS") and ASEAN Sustainability Bond Standards ("SUS"), issued by the ASEAN Capital Markets Forum (ACMF); and the Green Loan Principles ("GLP") and Social Loan Principles ("SLP") issued by the Loan Market Association (LMA).

Sustainability Debentures Portfolio

BEM issued the latest Sustainability Debentures in 2022 value of THB 4,500 million to institutional and high-net-worth investors on September 5th, 2022. The details of Sustainability Debentures are as follows;

No.	ThaiBMA Symbol	Issue Date	Maturity Date	Tenor (year)	Coupon (p.a.)	Issue Size (THB mn)
1	BEM244A	28 Apr 2021	28 Apr 2024	3	1.56%	2,000
2	BEM264A	28 Apr 2021	28 Apr 2026	5	2.24%	2,000
3	BEM284A	28 Apr 2021	28 Apr 2028	7	2.91%	1,000
4	BEM314A	28 Apr 2021	28 Apr 2031	10	3.33%	1,000
5	BEM259A	5 Sep 2022	5 Sep 2025	3	2.76%	1,000
6	BEM279A	5 Sep 2022	5 Sep 2027	5	3.33%	1,500
7	BEM329A	5 Sep 2022	5 Sep 2032	10	4.01%	1,000
8	BEM349A	5 Sep 2022	5 Sep 2034	12	4.15%	1,000
Total						10,500

Sustainability Loan Portfolio

BEM entered into sustainability loan agreement with domestic financial institution in the amount of THB 3,000 million. The details of Sustainability Loan are as follows;

No	Type	Start	End	Tenor (year)	Interest rate (p.a.)	Size (THB mn)
1	Loan Agreement	Feb 2022	Feb 2027	5	THOR+ Spread	3,000
Total						<u>3,000</u>

Proceeds Allocation

BEM fully allocated the proceeds from Sustainability Debentures and Loan since the issuance and/or drawdown date to refinance debt and/or investment in MRT Blue Line project within the green and social categories regarding clean transportation and affordable basic infrastructure under the company's Sustainable Financing Framework.

Name of Project	Green and Social Categories	Allocation Date	Allocation Amount (THB mn)	% of Refinance Proportion	Look-back Period for Refinance
MRT Blue Line	Clean transportation and Affordable Basic Infrastructure	28 Apr 2021	6,000	100%	Nov 2018 – Dec 2019
MRT Blue Line	Clean transportation and Affordable Basic Infrastructure	22 Feb and 31 May 2022	3,000	100%	Jan 2020 – Jul 2020
MRT Blue Line	Clean transportation and Affordable Basic Infrastructure	5 Sep 2022	4,500	100%	Jul 2020 – Sep 2021
Total			<u>13,500</u>		

Impact Report

Sustainability project descriptions and environmental and social benefits

Name of Project	MRT Blue Line
Description of Project	The Company has obtained the concession namely the M.R.T. Chaloe M Ratchamongkhon Line Project (MRT Blue Line) from the Mass Rapid Transit Authority of Thailand ("MRTA"), which is comprised of Hua Lamphong - Bang Sue section, Hua Lamphong - Bang Khae section, and Bang Sue - Tha Phra section covering a total distance of 48 kilometers and 38 stations, for the concession period of 30 years from the date of service opening of the entire route on March 30, 2020.
Green and Social Categories	Clean transportation and Affordable Basic Infrastructure
Benefits of Project	Provide clean transportation service, alleviate traffic problems, preserve environments, and improve quality of life of people in the society.
Passenger Trips	98,775,049 trips in 2022 (53,529,435 trips ¹ in 2021)
CO2e Offset in tonnes	9,889 tonnes ² in 2022
Other Benefits	<ul style="list-style-type: none"> • Enhance healthy journey such as tightening up measures for cleanliness, spraying disinfectants, campaign for wearing cloth face masks and ensuring social distancing. • Measures for energy saving management were implemented to reduce energy consumption such as regenerative braking systems, LED lights, system of recycling train washing water and etc.

Note

¹ There is a substantial fall in Passenger trips for MRT Blue Line as a result of the pandemic of Coronavirus Disease 2019 (COVID-19) in Thailand.

² Key approach and assumptions:

The estimation on the reduction of Green House Gas (GHG) emission for the Blue Line is based on a comparison of the GHG emissions between railway lines and buses, i.e. assuming that without the railway lines, passengers would have taken buses for their full journeys. This is a conservative estimate as passengers are likely to utilize a mix of minibus, taxis and private cars, totally emitting more GHG than only buses.

$$\text{GHG Emission avoided} = \text{Number of Passenger} * (\text{Emission Factor of Bus} - \text{Emission Factor of MRT}) * \text{Average Distance per Passenger} / 1,000$$

Transport Mode	Emission Factor kgCO ₂ e per Passenger-km	Computed by
Bus	0.0160	using the fuel emission factor (2.7406 kgCO ₂ e/litre) divided by the consumption rate (2.85 km/litre) and the bus capacity (60 passengers)
MRT	0.0043	using the electricity emission factor (0.4999 kgCO ₂ e/kwh) divided by the consumption rate (0.13 km/kwh) and the carriage capacity (886 passengers)

Reference: The emission factor (Bus and MRT), consumption rate (Bus) and capacity (Bus) were obtained from a report published by Thailand Greenhouse Gas Management Organization (Public Organization) (“TGO”)

<http://thaicarbonlabel.tgo.or.th/index.php?lang=TH&mod=Y0hKdplVmpkSE5mWlcxcGMzTnBiMiQ9>

http://thaicarbonlabel.tgo.or.th/admin/uploadfiles/emission/ts_578cd2cb78.pdf

Emission Avoidance Estimation for MRT

The average travelling distance of each passenger was 8.56 km. Based on the number of passengers for the Blue Line in 2022, the corresponding avoidance of GHG emissions are computed as follows:

Project	Annual Passenger Number ('000)	Annual GHG Emissions Avoided (tonnes CO ₂ e)
MRT Blue Line	98,775	9,889