

Part 1 Business Operations

1. Business Policy and Overview

Bangkok Expressway and Metro Public Company Limited (the “Company”) was incorporated from the amalgamation, pursuant to the Public Limited Company Act, between Bangkok Expressway Public Company Limited (“BECL”) and Bangkok Metro Public Company Limited (“BMCL”) on December 30, 2015, and the Company has assumed all assets, rights, duties and responsibilities of both companies by operation of law. As of December 31, 2019, the Company’s registered and paid-up capital amounted to Baht 15,285,000,000 divided into a total of 15,285,000,000 ordinary shares, at the par value of Baht 1 per share.

The Company’s main businesses are the provision of the expressway and metro services, including commercial development relating to the expressway and metro systems, which will lay a foundation for business expansion through future extension of the routes and the service network, both in the expressway and metro systems, thereby enabling the Company to be a leading mass rapid transit and transportation service operator in Thailand and in the region. Moreover, the Company may extend its businesses to other fast-growing businesses with good returns, such as other infrastructure projects, commercial development or real estate development, both at home and abroad, etc.

1.1 Vision, Mission, Goals, Business Strategies and Business Overview

Vision

The Company’s vision is to become a leading, fully-integrated transportation service provider in Thailand and ASEAN.

Mission

The Company is committed to:

1. Providing services of the expressway and metro systems with safety, convenience, rapidity, reliability, punctuality, and efficiency, in order to improve the quality of people’s lives;
2. Improving the quality and efficiency of the modern and full-service transportation network in order to alleviate traffic problems, preserve the environment, and improve society and the country;
3. Creating value-added and utmost benefit to shareholders based on fairness to all stakeholders.

Goals and Business Strategies

To achieve the Company’s objectives and mission, the Company has formulated major strategies in its business operations, as follows:

1. To invest in the transportation system projects, expressway and connecting road projects, metro system projects, and related projects under the government policy for public-private partnership (PPP) in respect of infrastructure, including related business, such as, various commercial development, taking into consideration the projects which are beneficial to society and the country, with reasonable business yields;
2. To strengthen the businesses by generating revenues for continued growth, and managing costs and expenses efficiently, in order to maintain good financial standing;
3. To build relationships with stakeholders through the corporate social responsibility process and communicate with internal and external personnel about it;
4. To develop personnel ready for the provision of quality services of the expressway and metro systems;
5. To build social recognition of the corporate good image.

Business Overview of the Company

The Company is committed to being a leading, fully-integrated transportation service provider, which builds up a good journey for a better living. The Company's businesses comprise the provision of the expressway and metro services, including commercial development directly related to the main businesses. The Company's business overview is as follows:

1.1.1 Expressway Business

The Company and one of its subsidiaries, namely, Northern Bangkok Expressway Company Limited ("NECL"), have obtained concessions from the Expressway Authority of Thailand ("EXAT") for construction and operation of a total of four expressways, comprising:

1) The Si Rat Expressway (Sectors A, B, and C)

The Si Rat Expressway (Second Stage Expressway) (Sectors A, B, and C) under the Second Stage Expressway Agreement with the Expressway Authority of Thailand ("EXAT") for a concession period of 30 years from March 1, 1990, comprising 3 Sectors, namely, Sector A (Rama 9-Ratchadapisek), Sector B (Phayathai-Bangkhlo), and Sector C (Ratchadapisek-Chaeng Watthana), covering a total distance of 29.8 kilometers.

2) The Si Rat Expressway (Sector D)

The Si Rat Expressway (Sector D) is under the Agreement for the Extension of the Second Stage Expressway System (Sector D), with EXAT, for a concession period of 30 years from April 22, 1997. The route starts from Rama 9 Road to Srinagarindra Road, with a connection to Sector A at Rama 9 Road eastward to cut across Ramkhamhaeng Road and to end at Srinagarindra Road, covering a distance of 8.7 kilometers.

3) The Si Rat - Outer Ring Road Expressway

The Si Rat - Outer Ring Road Expressway under the Concession Agreement for Investment, Design, Construction, Operation, Service, and Maintenance of the Si Rat - Outer Ring Road Expressway Project, with EXAT for a concession period of 30 years from December 15, 2012. The route starts from the Outer Ring Road (Kanjapisek Road around Mahasawat Water Treatment Plant) heading eastbound along the right of way of the existing Southern railway, crossing the Chao Phraya River around the Rama VII Bridge, ending around Bang Sue Grand Station (Chatuchak), connecting with the Si Rat Expressway around the Bus Terminal (Mo Chit 2), running down to at-grade level around Kamphaeng Phet 2 Road, covering a total distance of 17 kilometers. The connection to the north heading to Chaeng Watthana was opened for service on September 30, 2018.

4) The Udon Ratthaya Expressway

The Udon Ratthaya Expressway (Bang Pa-in - Pak Kret Expressway), operated by NECL under the Bang Pa-in - Pak Kret Expressway Agreement with EXAT for a period of 30 years from September 27, 1996, comprising 2 Stages, namely, Stage 1, Chaeng Watthana - Chiang Rak, and Stage 2, Chiang Rak - Bang Sai, connecting to the Si Rat Expressway around Chaeng Watthana Road, covering a total distance of 32 kilometers.

1.1.2 Rail Business

The Company has obtained concessions for the operation of two mass rapid transit rail system projects from the Mass Rapid Transit Authority of Thailand ("MRTA"), namely:

- 1) The M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line), by investment on a PPP Net Cost basis, whereby MRTA invests in all civil works and the Company shall supply, install the M&E Equipment, and provide the operation and maintenance services. The Company is entitled to farebox revenue and undertaking activities and commercial development, including advertising, leasing space and telecommunications services in the metro stations and in the trains of the MRT Blue Line for a period of 30 years from the date on which the whole MRT Blue Line is opened for full service, consisting of:
 - Hua Lamphong - Bang Sue Section, which is the first underground metro project of Thailand, covering a total distance of 20 kilometers, with 18 underground stations, opened for train operation service on July 3, 2004;

- Hua Lamphong - Bang Khae Section, which is the underground and elevated route, covering a total distance of 16 kilometers, with 11 stations; and Bang Sue - Tha Phra Section, which is the entire elevated route, covering a total distance of 12 kilometers, with 9 stations, divided into 3 phases during the installation of the M&E Equipment for service opening, namely, Phase 1: Bang Sue Station - Tao Poon Station, opened for service on August 11, 2017; Phase 2: Hua Lamphong Station - Lak Song Station, opened for service on September 29, 2019; and Phase 3: Tao Poon Station - Tha Phra Station, to be opened for service by March 2020.

The M.R.T. Chaloen Ratchamongkhon Line Project (MRT Blue Line) has connected to the M.R.T. Chalong Ratchadham Line Project (MRT Purple Line) at Tao Poon Station.

- 2) The M.R.T. Chalong Ratchadham Line Project or the MRT Purple Line Project, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section (Khlom Bang Phai Station - Tao Poon Station), Contract 4: Concession for Supply of M&E Systems and O&M Services, on a PPP Gross Cost basis, whereby MRTA invests in all civil works and the Company invests in the M&E Systems and the rolling stocks, as well as provides the operation and maintenance services in accordance with the specified service standards. MRTA is entitled to all farebox revenue and commercial development revenue from the utilization of the civil infrastructure and the railway systems and MRTA shall make a gradual repayment of the M&E Equipment to the Company on a monthly basis for a period of 10 years, and shall engage the Company for the O&M Services throughout the concession period of 30 years from September 4, 2013.

The M.R.T. Chalong Ratchadham Line Project (MRT Purple Line) is an elevated metro project, for a distance of 23 kilometers, with 16 stations and a connection to the M.R.T. Chaloen Ratchamongkhon Line Project (MRT Blue Line) at Tao Poon Station, whereby the M.R.T. Chalong Ratchadham Line Project (MRT Purple Line), was opened for service on August 6, 2016.

1.1.3 Commercial Development Business

The Company and one of its subsidiaries, namely, Bangkok Metro Networks Limited ("BMN"), operate the commercial development business of the MRT Blue Line Project, as follows:

- 1) Procurement and/or production of advertising media of various forms in the trains and metro stations;
- 2) Lease of retail spaces in the MRT Blue Line stations and spaces in the basement level of the Lat Phrao park and ride facility;
- 3) Provision of service and maintenance of telecommunications system equipment inside the metro stations.

In addition, as for the expressways, the Company and NECL have allowed private entities and individuals to use spaces for commercial operation for installation of Intelligent Traffic Signs and various advertising boards, including retail spaces around toll plazas, and other business activities, such as the use of the expressway areas for installation of 3G signal boosters, etc.

1.2 Significant Changes and Developments of the Company in 2019

March 18, 2019 *

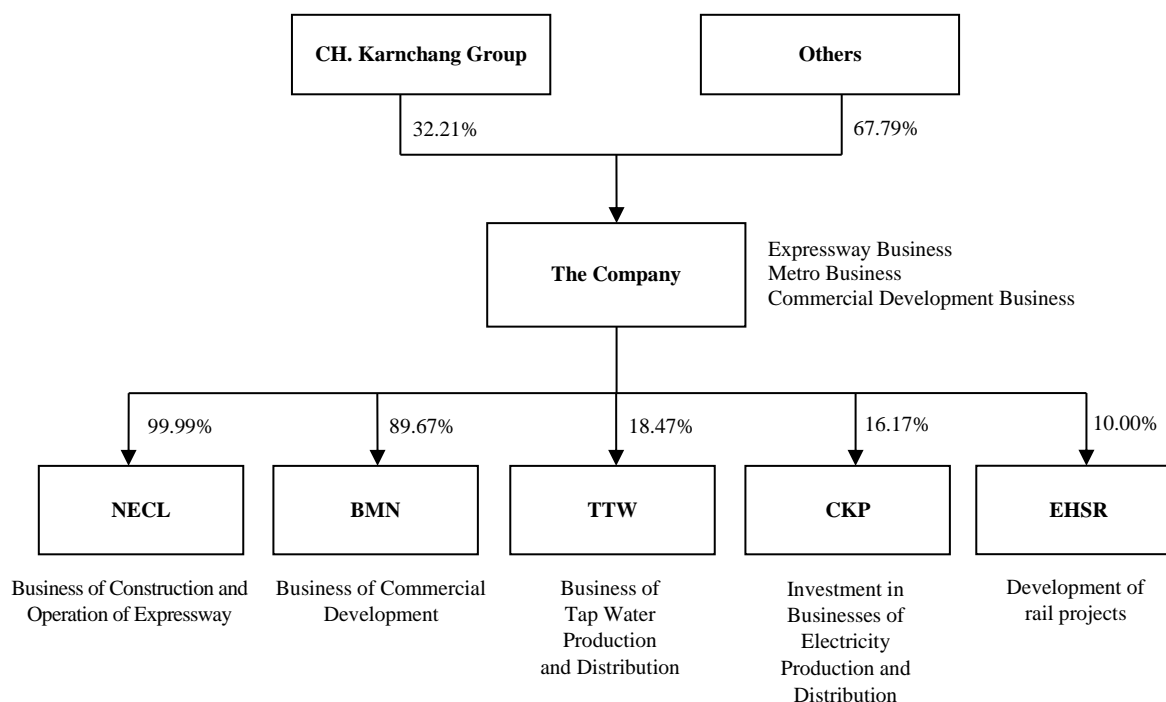
The Extraordinary General Meeting of Shareholders No. 1/2019 resolved to grant approval for the Company and the subsidiary to settle the disputes with EXAT by means of Amendment of the Second Stage Expressway Agreement, the Agreement for the Extension of the Second Stage Expressway System (Sector D), and the Bang Pa-in - Pak Kret Expressway Agreement, and in the case of any change in the agreement for settlement of the disputes, the Board of Directors shall be authorized to consider improvement, amendment in accordance with the results of the final negotiation and the resolution of the Council of Ministers.

March 27, 2019	The Company additionally purchased 5.08 million shares in Bangkok Metro Networks Limited (BMN), thereby rendering its shareholding percentage in BMN to 89.67 percent.
April 1, 2019	TRIS Rating Co., Ltd. reaffirmed the Company's rating at "A", with a "Stable" outlook.
April 29, 2019	The Company reclassified the investment in TTW Public Company Limited (TTW) to ensure consistency with the investment objective, thereby resulting in a decrease in its shareholding percentage in TTW to 18.47 percent.
May 9, 2019	The Company issued and offered for sale debentures No. 1/2019, with a maturity of 3-10 years, in the total amount of Baht 5,000 Million, at the fixed interest rate of 2.65 percent to 3.84 percent per annum, proceeds of which would be used for repayment of the matured existing debentures.
July 22, 2019	The Company received an "Excellent" rating with 98 scores in the assessment of the quality of the 2019 Annual Ordinary General Meeting of Shareholders (AGM Checklist) from the Thai Investors Association.
August 27, 2019	The Company received the Drive Award 2019 for Environment and Sustainability in Service Business, from MBA Chula Alumni, the Faculty of Commerce and Accountancy, Chulalongkorn University.
September 29, 2019	The Company opened for commercial service the M.R.T. Chaloe Ratchamongkhon Line Project (MRT Blue Line), Section 2: Hua Lamphong Station to Lak Song Station, for 11 stations.
October 18, 2019	The Company received the Thailand Energy Awards 2019 in the category of energy conservation in transportation, showcasing its energy saving at national level, from the Department of Alternative Energy Development and Efficiency, Ministry of Energy.
October 24, 2019	Eastern High-Speed Rail Linking Three Airports Company Limited, with BEM holding its shares representing 10 percent of the registered capital, signed the Agreement for Joint Investment for the Hi-Speed Rail Linking Three Airports Project with the State Railway of Thailand.
October 28, 2019	The Thai Institute of Directors Association (IOD) announced the results of corporate governance survey of listed companies for 2019, in which the Company received the "Very Good" score level.
November 26, 2019	The Company was selected to enlist in Thailand Sustainability Investment 2019 for the third consecutive year as a listed company engaging in the businesses by taking into account environment, society and corporate governance.
December 23, 2019	The Company opened for the people to take free rides on the M.R.T. Chaloe Ratchamongkhon Line Project (MRT Blue Line), Section 3: Bang Sue - Tha Phra Section, for 8 stations.

Remark : * On February 18, 2020, the Council of Ministers' Meeting agreed to amend the Agreements for Settlement of the Disputes between the Company/ the subsidiary and the Expressway Authority of Thailand (EXAT), and on February 20, 2020, the Company/the subsidiary and EXAT signed the Second Stage Expressway Agreement (Amendment) and the Bang Pa-in - Pak Kret Expressway Agreement (Amendment).

1.3 Shareholding Structure of Company Group

➤ **Chart of Shareholding Structure and the Company's Shareholding Percentage as of December 31, 2019**



Remark: CH. Karnchang Group comprises

- 1) CH. Karnchang Public Company Limited; and
- 2) CH. Karnchang-Tokyu Construction Company Limited.

➤ **Investment in Subsidiaries and Other Companies**

The Company has a policy on investment in businesses of infrastructure or businesses supporting the Company's operations and creating opportunity and long-term yields to the Company, including the sources of investment for future projects. The Company's investment as of December 31, 2019, was as follows:

1) Names of Companies invested by the Company and its Shareholding Percentage

Unit: Million Baht

Names of Companies	Nature of Business	Registered Capital	Paid-up Capital	Shareholding Percentage	Investment Value at Cost
Subsidiaries					
Northern Bangkok Expressway Company Limited	Construction and operation of the Udon Rattaya Expressway	6,000	5,250	99.99%	2,604
Bangkok Metro Networks Limited	Operation of the commercial development business	254	254	89.67%	495
Other Companies					
CK Power Public Company Limited	Investment by holding shares in other companies (Holding Company) operating business of electricity production and distribution	9,240	8,129	16.17%	2,929
TTW Public Company Limited	Tap water production and distribution	3,990	3,990	18.47%	4,061
Eastern High-Speed Rail Linking Three Airports Company Limited	Development of rail projects	4,000	4,000	10.00%	400

2) Details of Companies Invested by the Company**Expressway Business****1. Northern Bangkok Expressway Company Limited (“NECL”)**

NECL’s registered capital amounts to Baht 6,000 Million, divided into 294 million ordinary shares and 306 million preferred shares, at the par value of Baht 10 per share, with the paid-up capital of Baht 5,250 Million. As of December 31, 2019, the Company’s shareholding was 99.99 percent of its registered capital. NECL entered into the Agreement with EXAT for construction and operation of the Udon Rattaya Expressway for a period of 30 years from September 27, 1996. The Udon Rattaya Expressway is northbound and continues from the Si Rat Expressway around Chaeng Watthana Road and passes Bang Phun, Chiang Rak and ends at Bang Sai.

Commercial Development Business**1. Bangkok Metro Networks Limited (“BMN”)**

BMN has a total registered capital of Baht 254 Million, divided into 25.4 million ordinary shares, at the par value of Baht 10 per share, with the paid-up capital of Baht 254 Million. As of December 31, 2019, the Company’s shareholding in BMN was 89.67 percent of its registered capital.

The Company currently engages BMN to serve as its sole management representative for commercial development in the MRT Blue Line Project as operated by the Company and also entitles BMN to be its management representative for commercial development, namely, procurement and production of advertising media of various forms in the metro stations and trains, lease of retail spaces in stations of the M.R.T. Chaloem Ratchamongkhon Line Project and at the basement level of the park and ride facility at the Lat Phrao Station, as well as providing service and maintenance of telecommunications system equipment in the stations and tunnels.

Other Infrastructure Businesses**1. CK Power Public Company Limited (“CKP”)**

CKP is a listed company on the Stock Exchange, operating its main business by investing in other companies (Holding Company) which operate the business of electricity production and distribution. CKP has a total registered capital of Baht 9,240 Million, divided into 8,129,382,039 ordinary shares, at the par value of Baht 1 per share, with the paid-up capital of Baht 8,129,382,039. As of December 31, 2019, the Company’s shareholding was 16.17 percent of its paid-up capital. CKP invests in companies operating the business of electricity production and distribution from three types of energy, namely, hydropower business, by investing in SouthEast Asia Energy Limited and Xayaburi Power Company Limited; thermal power business (cogeneration system), by investing in Bangpa-in Cogeneration Limited; and solar power business, by investing in Bangkhenchai Company Limited, Nakhon Ratchasima Solar Limited, and Chiangrai Solar Limited.

2. TTW Public Company Limited (“TTW”)

TTW is a listed company on the Stock Exchange, having a total registered capital of Baht 3,990 Million, divided into 3,990 million ordinary shares, at the par value of Baht 1 per share, with the paid-up capital of Baht 3,990 Million. As of December 31, 2019, the Company’s shareholding was 18.47 percent of its registered capital. TTW operates the business of production and distribution of tap water to the Provincial Waterworks Authority in the areas of Nakhon Pathom Province and Samut Sakhon Province, under the Water Purchase and Sale Agreement with the Provincial Waterworks Authority for a period of 30 years from July 21, 2004. In addition, TTW invests in Pathum Thani Water Co., Ltd., representing 98 percent of its registered capital, which operates the business of tap water production and

distribution in the areas of Pathum Thani and Rangsit, under the Water Purchase and Sale Agreement with the Provincial Waterworks Authority for a period of 25 years from October 15, 1998, and also invests in Thai Water Operations Company Limited, which operates the business of management and operation of tap water production and distribution systems and water treatment system, as well as invests in the energy business by holding shares in CKP representing approximately 25 percent of its registered capital.

3. Eastern High-Speed Rail Linking Three Airports Company Limited (“EHSR”)

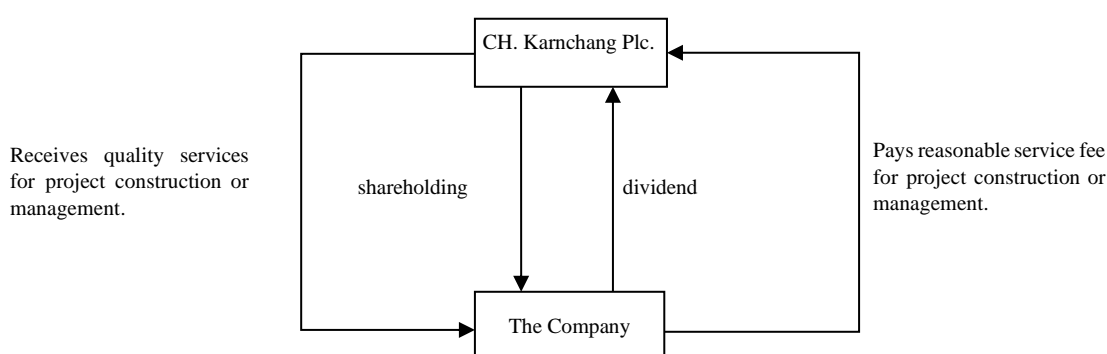
EHSR is a company established by CPH Group, with its registered capital of Baht 4,000 Million, divided into 40 million ordinary shares, at the par value of Baht 100 per share. As of December 31, 2019, the Company’s shareholding was 10 percent of its registered capital. EHSR carries out development of rail projects, design and construction works, civil work, in association with other projects, supply of the M&E Systems and rolling stocks, including provision of train operation and maintenance services, and development of areas supporting the rail services of the project for a period of 50 years (with the construction period of 5 years and operation period of 45 years).

1.4 Relationship with Business Alliance of Major Shareholder

CH. Karnchang Plc. is the Company’s major shareholder. As of December 31, 2019, CH. Karnchang Plc. was holding 4,787,121,829 shares in the Company, representing 31.32 percent of the Company’s paid-up capital. From the past until the present, the Company engaged CH. Karnchang Plc. for construction and operation of various projects, as CH. Karnchang Plc. is a large construction company in Thailand, with potential, knowledge, and expertise, and is thoroughly familiar with the civil infrastructure of the expressway and metro projects, as well as M&E Equipment. In addition, CH. Karnchang Plc. has experience in the contractual operations on a Lump Sum Turnkey basis, which enables it to deliver quality works timely, and is also the Company’s strategic investment partner, and as a result, CH. Karnchang Plc. has responsibility and commitment to operating the projects with success.

Therefore, in the future, it is possible that the Company will engage CH. Karnchang Plc. for project construction or management. However, in the execution of transactions with CH. Karnchang Plc., which may have a conflict of interest, the Company will comply with its policy on the execution of connected transactions per details as disclosed in Item 12. Connected Transactions.

Chart of Relationship with Business Alliance of Major Shareholder



2. Nature of Business Operations

The Company and its subsidiaries have operated the businesses as concessionaires awarded by the government sector, as follows: 1) concessionaires for the expressway construction and operation, namely, the Si Rat Expressway (Sectors A, B, and C), the Si Rat Expressway (Sector D), the Si Rat - Outer Ring Road Expressway and the Udon Rattaya Expressway; 2) concessionaires for operation of the M.R.T. Chaloom Ratchamongkhon Line Project (MRT Blue Line) and the M.R.T. Chalong Ratchadham Line Project (MRT Purple Line). Other than serving as the concessionaire, the Company has also operated the commercial development business pursuant to the relevant Concession Agreements. Currently, the revenue structure of the Company and its subsidiaries is set forth below.

(Unit: Million Baht)

Total Revenue Structure	Operated by	Shareholding Percentage of the Company	Consolidated Financial Information					
			For Year Ended December 31, 2019		For Year Ended December 31, 2018		For Year Ended December 31, 2017	
			Million Baht	%	Million Baht	%	Million Baht	%
Revenue from expressway business			10,302	60.6 %	10,174	61.3 %	9,957	64.7 %
Toll revenue	Company		8,852	52.1 %	8,718	52.5 %	8,573	55.7 %
Toll revenue	Subsidiary	99.99	1,450	8.5 %	1,456	8.8 %	1,384	9.0 %
Revenue from rail business			5,022	29.5 %	4,736	28.6 %	4,521	29.3 %
Farebox revenue and metro operation service charges	Company		5,022	29.5 %	4,736	28.6 %	4,521	29.3 %
Commercial development revenue			783	4.6 %	705	4.2 %	675	4.4 %
Commercial development revenue	Company		720	4.2 %	240	1.4 %	75	0.5 %
Commercial development revenue	Subsidiary	89.67	63	0.4 %	465	2.8 %	600	3.9 %
Gain on sale of investments ⁽¹⁾			181	1.1 %	499	3.0 %	12	0.1 %
Other income ⁽²⁾			707	4.2 %	477	2.9 %	228	1.5 %
Total revenues ⁽³⁾			16,995	100 %	16,591	100 %	15,393	100 %

Remarks: (1) Gain on sale of investments includes gain on sales of investments in CKP, XPCL, TTW, and other temporary investments.

(2) Other income comprises interest income, gain on fair value adjustment of temporary investment.

(3) Gains on reclassification of investments in TTW and CKP in 2019 and 2018, respectively, are not included.

2.1 Nature of Business Operations of the Company

The Company is committed to be a leading, fully-integrated transportation service provider, which builds up convenient, rapid, reliable and safe journeys for a better living. The Company's businesses are composed of the expressway and metro system services, including commercial development business directly related to the main businesses. The Company's overall businesses are divided into three main sectors, as follows:

2.1.1 Expressway Business

1) Nature of Services

The Company and one of its subsidiaries, i.e., Northern Bangkok Expressway Company Limited ("NECL"), have been granted concessions for construction and operation of a total of four expressways, namely, the Si Rat Expressway (Sectors A, B, and C), the Si Rat Expressway (Sector D), the Si Rat - Outer Ring Road Expressway, and the Udon Rattaya Expressway, as per the following details:

(1) The Si Rat Expressway (Sectors A, B, and C)

The Si Rat Expressway (Second Stage Expressway) under the Second Stage Expressway Agreement with the Expressway Authority of Thailand (“EXAT”) for a concession period of 30 years from March 1, 1990.

The Si Rat Expressway is the first large-scale construction project in Thailand on the basis of public private partnership. This project is implemented on a BTO (Build Transfer Operate) basis, namely, the Company (formerly BECL) invested in the design, construction and operation of the Si Rat Expressway. In this regard, the title to various permanent constructions pertaining to or use of the Si Rat Expressway shall be vested in EXAT. This expressway comprises 3 Sectors, namely, Sector A (Rama 9 - Ratchadapisek), Sector B (Phayathai - Bangkhlo), Sector C (Ratchadapisek - Chaeng Watthana), covering a total distance of 29.8 kilometers. EXAT invested in the construction and operation of the Chalerm Mahanakorn Expressway (First Stage Expressway), covering a total distance of 27.1 kilometers. The Company has the right to receive toll revenue sharing in respect of the Chalerm Mahanakorn Expressway and the Si Rat Expressway in such proportions as specified in the Second Stage Expressway Agreement.

As for toll collection, expressway users shall pay tolls at the booths around the on-ramps of the Expressway. EXAT is responsible for the collection of all tolls and shares such toll revenue with the Company as specified in the Second Stage Expressway Agreement with effect from the Priority Component Opening Date. The toll revenue from the Chalerm Mahanakorn Expressway and the Si Rat Expressway shall be encompassed and shared as per rules of area zoning. This is to say that in the urban network, for the first nine years, the Company and EXAT shall receive the revenue sharing at 60 percent and 40 percent, respectively. For the last nine years, the Company and EXAT shall receive revenue sharing at 40 percent and 60 percent, respectively. As for the period between the first nine years and the last nine years, the Company and EXAT shall receive the revenue sharing at 50 percent each. For the suburban network, namely, the Si Rat Expressway (Sector C), all toll revenues shall belong to the Company throughout the period of the Agreement.

(2) The Si Rat Expressway (Sector D)

The Si Rat Expressway (Sector D) (Rama 9 - Srinagarindra) is under the Agreement for the Extension of the Second Stage Expressway System, Sector D, with EXAT, for a concession period of 30 years from April 22, 1997.

The Si Rat Expressway (Sector D) is implemented on a BTO (Build Transfer and Operate) basis, namely, the Company invested in design, construction and operation of the expressway system; however, the title to permanent constructions pertaining thereto shall be vested in EXAT, covering a distance of 8.7 kilometers. In this regard, the Company has the right to receive consideration from toll revenue as specified in the Agreement, and toll rates shall be revised under the same criteria as that of the Second Stage Expressway Agreement.

(3) The Si Rat-Outer Ring Road Expressway Project

The Si Rat-Outer Ring Road Expressway under the Concession Agreement for Investment, Design, Construction, Operation, Service, and Maintenance of the Si Rat-Outer Ring Road Expressway Project, with EXAT for a concession period of 30 years from December 15, 2012.

The Company has the duties to carry out design and construction, supply and installation of various equipment and systems, together with operation and maintenance of the expressway, including toll collection, in consideration of the right to receive toll revenue and other revenues (if any). The project is an elevated six-traffic lane expressway, for a distance of 17 kilometers, with 10 toll plazas. The project’s route starts from the Outer Ring Road (Kanjapisek Road around Mahasawat Water Treatment Plant) heading eastbound along the right of way of the existing Southern railway, crossing the Chao Phraya River around the Rama VII

Bridge, ending around Bang Sue Grand Station (Chatuchak), connecting with the Si Rat Expressway to the north of the Mo Chit 2 Bus Terminal, and running down to at-grade level around Kamphaeng Phet 2 Road. Moreover, the Company opened the connection of the Si Rat - Outer Ring Road Expressway with the northern part of the Si Rat Expressway (heading to Chaeng Watthana) for service on September 30, 2018, in order to ensure the greater convenience in travelling to Chaeng Watthana and continuing along the Udon Ratthaya Expressway. In this regard, the Company is responsible for investment and all operating expenses, as well as sharing returns with or providing benefits to EXAT as specified in the Agreement.

In management of this project, the Company is responsible to collect tolls and shall have the right to receive all toll revenue and other revenues (if any) throughout the concession period, whereby the toll rates and revisions shall be agreed upon in the Agreement.

(4) The Udon Ratthaya Expressway

The Udon Ratthaya Expressway (Bang Pa-in - Pak Kret Expressway) is operated by the subsidiary (“NECL”) under the Bang Pa-in - Pak Kret Expressway Agreement with EXAT for a concession period of 30 years from September 27, 1996.

The Udon Ratthaya Expressway is implemented on a BTO (Build Transfer Operate) basis like the Si Rat Expressway, namely, NECL invested in the design, construction, and operation of the Udon Ratthaya Expressway, whereby the title to various permanent constructions pertaining to or use of the expressway shall be vested in EXAT, and EXAT is responsible to collect and deliver all tolls to NECL as specified in the Agreement. The Udon Ratthaya Expressway comprises 2 Stages, namely, Stage 1, Chaeng Watthana - Chiang Rak, and Stage 2, Chiang Rak - Bang Sai, connecting to the Si Rat Expressway around Chaeng Watthana Road, covering a total distance of 32 kilometers. As for the inbound route, expressway users shall pay tolls at the booths around the on-ramps of the expressway while in respect of the outbound route, expressway users shall pay tolls at the off-ramps of the expressway. EXAT is responsible to collect and deliver all tolls to NECL. All toll revenue in respect of the Udon Ratthaya Expressway shall belong to NECL.

2) The details of the expressway network connections are as follows:

Expressway Systems	Length (kilometers)	Constructed and Operated by
1. Chalerm Mahanakorn Expressway (First Stage Expressway) (Bang Na - Din Daeng - Dao Khanong)	27.1	EXAT
2. Si Rat Expressway (Second Stage Expressway) 2.1 Urban Network (Sectors A and B) (Prachachuen - Phayathai - Bangkhlo - Asoke) 2.2 Suburban Network (Sector C) (Prachachuen - Chaeng Watthana)	29.8	Company
3. Si Rat Expressway (Sector D) (Rama 9 – Srinagarindra)	8.7	Company
4. Udon Ratthaya Expressway (Bang Pa-in - Pak Kret)	32.0	NECL
5. Uttaraphimuk Elevated Way (Don Muang Tollway)	28.0	Don Muang Tollway Public Company Limited
6. Chalong Rat Expressway including its Extension (Ramindra - At Narong and Ramindra - Outer Ring Road)	32.9	EXAT
7. Burapha Withi Expressway (Bang Na - Chonburi)	55	EXAT

Expressway Systems	Length (kilometers)	Constructed and Operated by
8. Kanjanapisek Expressway (Bang Pli - Suksawad) and Highway No. 37 (Suksawad - Bang Khun Thien Section) including a connecting road to Bhumibol Bridge 1 and Bhumibol Bridge 2	37.8	EXAT
9. Si Rat - Outer Ring Road Expressway and Connection of the Si Rat - Outer Ring Road Expressway with the northern part of the Si Rat Expressway (heading to Chaeng Watthana)	16.7	Company
Total Length	268.0	

3) Toll Revenue Sharing

Effective from March 1, 2011, the Company and EXAT have received the toll revenue sharing in respect of the urban network at 40 percent and 60 percent, respectively, while the Company has received all toll revenues for the suburban network, in accordance with the terms of the Agreements.

Expressway	Network	Length (km.)	Opening Date	Revenue	Revenue Sharing Company : EXAT
Chalerm Mahanakorn Din Daeng - Port Bang Na - Port Port - Dao Khanong	Urban Urban Urban	8.9 7.9 10.3	January 4, 1981 January 17, 1983 August 8, 1987	Company and EXAT	- 60:40 for the first nine years - 50:50 for the period between the first nine years and the last nine years - 40:60 for the last nine years
Si Rat Sector A: Rama 9-Ratchadapisek Sector B: Phayathai-Bangkhlo	Urban Urban	12.4 9.4	September 2, 1993 October 6, 1996	Company and EXAT	- 60:40 for the first nine years - 50:50 for the period between for the first nine years and the last nine years - 40:60 for the last nine years
Sector C: Ratchadapisek - Chaeng Watthana	Suburban	8.0	September 2, 1993	Company	- 100:0
Si Rat (Sector D) Rama 9 - Srinagarindra	Suburban	8.7	Section 1 December 2, 1998 Section 2 March 1, 2000	Company	- 100:0
Si Rat-Outer Ring Road	Suburban	17.0	August 22, 2016	Company	- 100:0
Udon Ratthaya Chaeng Watthana-Chiang Rak Chiang Rak - Bang Sai	Suburban Suburban	22.0 10.0	December 2, 1998 November 1, 1999	Subsidiary (NECL)	- 100:0

4) Toll Rates

Expressway/Toll Plaza	Toll Rates (Baht/Trip)		
	4 wheels	6-10 wheels	More than 10 wheels
Chalerm Mahanakorn Expressway (First Stage Expressway)	50	75	110
Except:			
At Narong 1 Toll Plaza (to Bang Na)	40*	65*	100*
Si Rat Expressway (Sectors A, B, and C) (Second Stage Expressway)	50	75	110
Except:			
Prachachuen Toll Plaza (inbound)	60	90	140
Prachachuen Toll Plaza (outbound)	10	15	30
Prachachuen 1 Toll Plaza (from Prachachuen Road)	15	20	35
Prachachuen 2 Toll Plaza (to Prachachuen Road)			
Ngam Wong Wan 1 Toll Plaza (outbound)			
Ngam Wong Wan 2 Toll Plaza (inbound)			
Si Rat Expressway (Sector D)	25	55	75
Si Rat - Outer Ring Road Expressway	50	80	115
Udon Ratthaya Expressway	45	100	150
Except:			
Muang Thong Thani Toll Plaza	35*	90*	140*
Bang Pa-in Toll Plaza	55	120	180

Remark: * This rate is the rate after Baht 10 discount for all types of vehicles.

The revision of the toll rates of the Chalerm Mahanakorn Expressway and the Si Rat Expressway is in accordance with the Second Stage Expressway Agreement, which shall be made every five years, and the calculation and revision shall be based on the most recent increase of the Consumer Price Index of Bangkok as issued by the Ministry of Commerce. Each increase shall be rounded up to the nearest whole multiple of Baht 5, provided that such revision shall not increase by more than Baht 10 during the first 15 years of the Contract Period. If there is an unusually high rate of inflation or an occurrence of Force Majeure or Exceptional Event, the Company and EXAT shall consider the toll revision as appropriate. The most recent revision of the toll rates was made on September 1, 2013. As for the revision of the toll rates in 2018, EXAT did not make such revision and continued to use the same toll rates as the year 2013.

The revision of the toll rates of the Si Rat - Outer Ring Road Expressway is in accordance with the Concession Agreement for Investment, Design, Construction, Management, Operation and Maintenance of the Si Rat - Outer Ring Road Expressway Project, which shall be made every five years from the date of service operation of the project for five years, at the rates of Baht 15, Baht 25 and Baht 35 for four-wheeled vehicles, six-wheeled to ten-wheeled vehicles; and more than ten-wheeled vehicles, respectively, as specified therein.

With respect to the Udon Ratthaya Expressway, the revision of toll rates every five years shall be based on the most recent increase of the Consumer Price Index of Bangkok as issued by the Ministry of Commerce. Each increase shall be rounded up to the nearest whole multiple of Baht 5, provided that such revision shall not increase by more than Baht 15 during the first 15 years of the Contract Period. The first toll revision was made on November 1, 2003, and the most recent revision of the toll rates was made on November 1, 2013. As for the revision of the toll rates in 2018, EXAT did not make such revision and continued to use the same toll rates as the year of 2013.

Despite EXAT's issuance of the Notifications of the Ministry of Transport with approval of the Deputy Minister of Transport in charge, namely, the toll rates for the Chalerm Mahanakorn Expressway and the Si Rat Expressway were effective on September 1, 2018 and the toll rates for the Udon Ratthaya Expressway were effective on November 1, 2018, the Company and one of its subsidiaries (NECL) were of the view that the revised toll rates under the said Notifications did not

comply with the provisions of the relevant Agreements since they still remained the same rates as the year 2013 to which the Company and the subsidiary continued to object against EXAT.

5) Marketing and Competition of Expressway Business

• Customer Characteristics and Target Customers of Expressway Business

Target customers of the Chalerm Mahanakorn Expressway, the Si Rat Expressway, the Si Rat - Outer Ring Road Expressway and the Udon Rattaya Expressway refer to those motorists who desire a convenient and rapid transportation or who desire to shorten the traveling distance to their destinations as well as to avoid the traffic congestion along the normal roads in Bangkok and its vicinity. The customers by the types of vehicles using the expressways may be divided into four-wheeled vehicles; six-wheeled to ten-wheeled vehicles; and more than ten-wheeled vehicles, which in 2019, accounted for 97.98 percent, 1.75 percent, and 0.27 percent, respectively. The traffic volume from January 1 to December 31, 2019, using the expressways may be described by areas as follows:

Expressway Systems	Average Traffic Volume (trips/day)	%
1. Chalerm Mahanakorn Expressway (First Stage Expressway) (Bang Na - Din Daeng - Dao Khanong)	373,831	30.21
2. Si Rat Expressway (Second Stage Expressway)		
2.1 Urban Network (Sectors A and B) (Prachachuen - Phayathai - Bangkhlo - Asoke)	317,068	25.63
2.2 Suburban Network (Sector C) (Prachachuen - Chaeng Watthana)	187,663	15.17
3. Si Rat Expressway (Sector D) (Asoke - Srinagarindra)	203,168	16.42
4. Udon Rattaya Expressway (Bang Pa-in - Pak Kret)	91,253	7.38
5. Si Rat - Outer Ring Road Expressway	64,252	5.19
Total Traffic Volume	1,237,235	100

Given the fact that the provision of the expressway services is considered a form of public service for motorists requiring convenient, rapid and safe traveling, as target customers of the expressway systems, customers are broad depending on their destinations, residences, and workplaces. In this respect, the revenue of the expressway systems will not depend on any particular group of customers.

6) Marketing Policy and Strategies of Expressway Business

• Marketing Strategies of Expressway Business

The marketing highlight is that the Si Rat Expressway is designed to respond to the transportation needs through the expressway network which connects to and covers major areas in Bangkok, whether from the Chalerm Mahanakorn Expressway and the Si Rat Expressway, as well as the Chalong Rat Expressway (Ramindra-At Narong) which cover the areas from the North to the South and from the West to the East of Bangkok. Motorists may use the expressway to connect to the Burapha Withi Expressway (Bang Na-Chonburi), and the Chalerm Mahanakorn Expressway and the Chalong Rat Expressway, thereby rendering the service of the expressway systems to become more complete for users to reach their destinations more conveniently and rapidly than using at-grade roads.

In respect of the Si Rat - Outer Ring Road Expressway, a route connecting between the Bangkok-Thonburi sides, by connecting with the Si Rat Expressway in the area of Mo Chit

Bus Terminal (Chatuchak), with the route crossing the Chao Phraya River at the Rama VII Bridge, continuing along in parallel to the Southern railway via the districts of Bang Phlat, Bang Bamru, Taling Chan, connecting to

the Boromarajonani Elevated Road passing Ratchaphruek Road, and ending at the Outer Ring Road (the West), thereby enabling motorists to conveniently and rapidly commute from and to Bangkok-Thonburi sides. Moreover, for travelling to the urban area, the connection of the Si Rat - Outer Ring Road Expressway with the northern part of the Si Rat Expressway (Sector A) was opened for service to ensure the greater convenience in expressway users' travelling to Ratchadaphisek, Prachachuen, Chaeng Watthana, and Bang Pa-in, by using the Udon Ratthaya Expressway.

The marketing disadvantage is the physical limitation which prevents the release of traffic around the expressway exits during rush hour, which depends on the traffic on at-grade roads, representing an uncertain factor beyond the Company's control. However, the Company continuously coordinates with traffic police in police stations of such areas, including linking video signal from CCTVs on the expressways to police stations of such areas, to provide assistance in releasing and facilitating traffic flow in the expressway systems by improving various on- and off-ramps for motorists to save time and facilitate motorists with more convenience and better quality of living in their commute in the downtown. Motorists should then appreciate these benefits over the price factor.

In view of various marketing strategies, the Company has proceeded as follows:

○ **Service and Product Strategies of Expressway Business**

- The prime location and connections to major roads in the city allow the expressway network to respond to the transportation needs of motorists to reach their desired destinations. In this regard, the Company has improved the quality of the routes and its services and given priority to the customers' needs, which will be integrated as key strategies to efficiently accommodate the traffic volume flowing in the system.
- The feasibility study on improvement of the on- and off-ramps of the expressways serves as another measure to facilitate the traveling and to continually maintain the quality of the expressways in terms of engineering safety to meet international standards.
- The Company has continuously monitored the traffic volume statistics to enhance the efficiency of its Easy Pass service as appropriate in order to improve the service provision and accommodate the increased volume of expressway users. The Company has added Easy Pass lanes at various Toll Plazas on the Si Rat Expressway and the Si Rat - Outer Ring Road Expressway to accommodate the increased volume of Easy Pass users. In addition, the Company has moved the Easy Pass lanes for more convenience and safety of the Easy Pass service users and to minimize the cross traffic between the cash lanes and the Easy Pass lanes, which will mitigate the traffic congestion at the front of the toll plazas.
- The study on new routes in response to the urbanization in the future, particularly in Bangkok, as well as the study on traveling behavior of motorists, are conducted to prepare for the expansion of the scope of the expressway services, and serve well as additional channels of services in response to needs of the motorists in the future.
- The Company has added communication channels on traffic information via Smart Traffic and Variable Message Signs (VMS) to keep motorists informed of the traffic conditions on expressways, as well as suggesting routes on expressways for more convenience and rapidity.
- The Company has also improved signboards regarding the expressway usage on the at-grade main road and various alleys in Bangkok and its vicinity so as to facilitate motorists and boost confidence to access and use the expressways. To this effect, the Company focuses on introducing such landmarks adjacent to the on- and off-ramps of the expressways on the website, various public relations media, and social media to ensure that customers, as the expressway users, would travel more conveniently and rapidly.

- The Company has organized the public relations activity about the Si Rat - Outer Ring Road Expressway, including the connection with the Si Rat Expressway heading to Chaeng Watthana, at the places located along the Si Rat - Outer Ring Road Expressways and Chaeng Watthana in order to introduce the expressway users to the use of the routes, as well as getting to know needs and suggestions directly from the expressway users. Moreover, the Company has recommended directions to restaurants and tourist attractions via the facebook fanpage ขับ ชิม เที่ยว (Drive Taste Travel), with a great number of followers.
- The Company has also conducted a survey on the satisfaction of the toll collection of the Si Rat-Outer Ring Road Expressway with a result at the “Very Good” level.
- More Easy Pass lanes were added in response to the increased traffic volume in the Easy Pass lanes and after EXAT’s policy on cancellation of the Easy Pass card deposit, the use of Easy Pass service then increased, thereby necessitating more Easy Pass lanes to accommodate the increased traffic volume, and as a result, motorists can save their commute time and fuels.
- Easy Pass lanes at Asoke 4 Toll Plaza, Prachachuen Toll Plazas (inbound) and (outbound), were relocated to the farthest right lane for motorists to have more efficient and rapid access to the Easy Pass lanes.
- Easy Pass signboards were improved for expressway motorists’ convenient and rapid passage through the Easy Pass lanes.
- All Easy Pass lanes on the Si Rat Expressway were improved as fast lanes to accommodate more rapid passage and minimize slow traffic in front of the Easy Pass lanes.
- The project to enhance the efficiency of Easy Pass lanes was set up, the Company installed the second antennas in Easy Pass lanes to suit the convenience of the Easy Pass users in the event that a barrier gate is not opened despite their remaining credit adequate for passing through, in that case, the system will have the barrier gate opened without waiting staff to open it. Such system helps expedite the motorists’ travelling, save time waiting in a queue and reduce traffic congestion in front of the toll booths, as well as minimizing air pollution.
- The pilot project for the ETC Single Lane Free Flow Easy Pass system was introduced in accordance with the Policy of the Ministry of Transport, at Asoke 3 Toll Plaza, Asoke 4 Toll Plaza, and Rama 9 Toll Plaza, totaling 7 lanes, by automatically lifting the barriers during rush hours to ensure motorists’ more rapid passage and time saving in a queue in a front of the toll plazas, which would help minimize air pollution. Furthermore, the Company has used the Automatic License Plate Recognition (ALPR) technology to help monitor vehicles’ unpermitted passage without having an Easy Pass or in the case that the Easy Pass is unreadable by the system while passing through the toll lanes. The project has been started since August 27, 2019 until now.
- The project to top up reserve via Easy Pass account with credit card, debit card and Thai QR Payment was set up by the Company in collaboration with EXAT, and Krung Thai Bank to develop the top-up service, at the customer service center, the Si Rat Expressway Control Center Building, to accommodate top ups via credit, debit cards or Thailand QR Payment, with the activated service opening from June 1, 2019.
- The project for toll payment via Contactless EMV card at the toll lanes was set up by the Company, in collaboration with EXAT, and Krung Thai Bank to develop the toll payment system with contactless-enabled credit or debit cards under the EMV standard for motorists’ convenience, with the trial run opening expected to take place in 2020.

○ **Price Strategies of Expressway Business**

- Toll rates are agreed upon and specified in the Agreements, including the calculation for revisions of toll rates ahead of time. It is mutually agreed that the rates are considered reasonable and based on the feasibility study for the investment of each project. Under the Second Stage Expressway Agreement, the Agreement for the Extension of Second Stage Expressway (Sector D), and the Bang Pa-in - Pak Kret Agreement, toll rates shall be revised at every five years interval in accordance with changes in Consumer Price Index of Bangkok as announced by the Ministry of Commerce, which serves as the basis of calculation for the intrinsic value of the toll rates during the given periods under the Agreements. Furthermore, the revision of the toll rates of the Si Rat - Outer Ring Road Expressway is in accordance with the Concession Agreement, which shall be made every five years from the date of service operation of the project at the rates specified therein.
- The Company continues to provide discount on tolls on certain routes for a limited period of time to attract motorists to increasingly use the expressway services, especially such routes with connections between the expressway systems, e.g., At Narong 1 Toll Plaza (from the Chalong Rat Expressway to enter the Chalerm Mahanakorn Expressway around Bang Na), and Muang Thong Thani Toll Plaza of the Udon Raththaya Expressway, which the Company, together with EXAT, continued to provide discount.

○ **Distribution and Distribution Channel Strategies of Expressway Business**

- **Payment of Tolls**
 - Users of the Chalerm Mahanakorn Expressway and the Si Rat Expressway may choose to use the expressway services from various on- and off-ramps covering major areas in Bangkok throughout the total distance of 65.6 kilometers. Expressway users shall pay tolls at the on-ramps of toll plazas, totaling 52 locations, 20 toll plazas of the Chalerm Mahanakorn Expressway (e.g., Din Daeng, Bang Na, Dao Khanong, Sukhumvit, Rama 4 Toll Plazas, etc.) and 32 toll plazas of the Si Rat Expressway (e.g., Asoke, Rama 9, Srinagarindra, Yommaraj, Surawong, Hua Lamphong, Khlong Prapa, Yan Phahon Yothin, Prachachuen, Rama 3, etc.). Users may pay tolls in two channels, in cash, or via Easy Pass.
 - Users of the Udon Raththaya Expressway which connects to the expressway system towards the North of Bangkok has a total distance of 32 kilometers, with 10 toll plazas, shall pay tolls at the on-ramps for the inbound direction and at the off-ramps for the outbound direction. There are five on-ramps and five off-ramps. Users may pay tolls in cash or via Easy Pass.
 - Users of the Si Rat - Outer Ring Road Expressway which connects to the Si Rat Expressway System towards the West of Bangkok has a total distance of 16.7 kilometers, with 9 toll plazas, shall pay tolls at the on-ramps in cash or via Easy Pass.
- **Electronic Toll Collection System**

The Company, in association with EXAT, introduces the Electronic Toll Collection system in the toll collection, in order to serve as an alternative channel for motorists and facilitate and speed up the toll payment at the front of the Toll Plazas during rush hours, as well as accommodating the increasing traffic volume in the future. Currently, there are Easy Pass users representing approximately 41.4 percent.

In the interest of convenience to the Easy Pass users, the Company has arranged for the Easy Pass Fast Service, including film cutting service for Easy Pass installation and testing, whereby the expressway users are able to bring their cars to use the services at the Easy Pass Fast Service, free of charge, at the Si Rat Expressway Control Center, Asoke - Dindaeng Road, every day during the office hours from 9:00 - 17:00 hours and Prachachuen Toll Plaza (outbound) on business days from 07.30 - 22.00 hours, on holidays from 09.00-22.00 hours. Moreover, the Company has added such Easy Pass Fast Service at the Si Rat - Outer Ring Road Expressway in the area of Chim Phli Toll Plaza, which would open for service on the first Saturday of every month. In this regard, the Company, in collaboration with EXAT and the Department of Highways, carried out integration between the Easy Pass system and the M-Pass system to enable the service users to pay tolls with only one pass for seven expressway routes and two of the Intercity Motorways (Motorways) of the Department of Highways.

○ **Marketing Promotion and Communication Strategies of Expressway Business**

The Company provides a discount on tolls on certain routes within a limited period of time, aimed at attracting target customers to continue to use the expressway services and eventually become regular customers. In 2019, the Company continued to provide a discount on the Udon Rathaya Expressway of one of its subsidiaries (NECL), to motorists at Muang Thong Thani Toll Plaza.

Furthermore, during the remarkable festivals, such as, Songkran Festival and New Year's Festival, the Company also holds activities promoting the use of the expressways for motorists by cooperating with EXAT to distribute souvenirs to motorists, including arranging for motorist service points, demonstrating our positive image and good relationship with motorists under the theme that we provide the best services to customers throughout the routes, as well as educating them about applicable traffic laws during Songkran Festival. In addition, to celebrate on the occasion of the previous New Year's Eve, the Company jointly supported EXAT in public relations of offering a discount on application fee for Easy Pass, and also joined EXAT to give a discount of Baht 5/trip to the Easy Pass users at Prachachuen Toll Plaza (inbound) only on business days during peak hours in the morning (05.00 - 09.00 hours) from August 1, 2019 to September 30, 2019, in order to encourage the expressway users to use more Easy Pass, thereby reducing accumulated traffic congestion at the front of the toll plaza. The Company, as a private company that provides the expressway services, implemented in response to the government policy by participating in the drive safety campaign known as "Driving Slowly, Daytime Headlight Switching on, Seat Belt Fastening", for the motorists' facility and safety during the Songkran and New Year Festivals, and the Company promoted the drive safety campaign via social media on the expressways and traffic radio station to the target customers to raise awareness of safe journey among them, as well as resting assured of the quality service on the expressways, and activities supporting use of the services of the Company.

The activities on the occasion of the National Mother and Father Days were held for the lucky motorists, offering toll discounts, dissemination of the expressway network maps, including connections of the expressways with various routes in order to facilitate the expressway users' travelling. This year, the Company organized the Smart Drive activity on two occasions to promote safe driving and reduce accidents, as well as giving an advice on basic car care, including how to handle emergencies on the expressways.

The channels of public relations used by the Company to disseminate information comprise documentary programs on radio and television, radio spot, leaflets, Variable Message Signs (VMS), and our website: www.bemplc.co.th, as well as social media (www.facebook.com/bangkokexpresswayandmetro), including BEM Magazine bimonthly newsletters as a medium for sharing information and news between the Company and motorists, and to educate, satisfy and attract new customers to use the services more, as well as organizing various social activities throughout the year to ensure the positive attitude of our services towards customers and society.

7) **Industrial Outlook and Competition of Expressway Business**

In 2019, the country's overall economy slowed down due to the contracted export sector together with the Baht strength, low agricultural income as a consequence of drought and high household debt, which were a cause for concern about the people's purchasing power. As a result, the financial institutions imposed a stricter limit on extending loans to consumers, including car loans, thereby shrinking to the car sales, despite the fact that in the first half of 2019, the car sales were likely to well expand by 7 percent owing to the good economic condition in 2018 and the launch of new car models, let alone good sales promotion plan, thereby changing new cars. However, there was a slowdown in car sales in the second half of 2019, the car sales then declined by 14 percent. (Source: Money & Banking Magazine dated January 17, 2020)

Even if the said economic slowdown resulted in the shrunk car sales, basic needs for cars still existed because the cars running on the roads had an average age of 7 years, most of which were cars entitled under the government's first car program, and then, there remained needs for new cars, and when compared to the statistics, there were 10,686,442 registered vehicles in Bangkok in 2019, and it found that there were 975,204 new registered vehicles, a slight increase from that in the previous year and from that with the high volume of accumulated vehicles while the road distance in Bangkok was only 5,500 kilometers in length. Consequently, there remained the traffic congestion problems throughout Bangkok's areas where the number of vehicles exceeded the capacity that its roads could accommodate. As a result, the average speeds of vehicles in Bangkok were 5-11 kilometers per hour during peak hours in the morning and 5.1-13 kilometers per hour during peak hours in the evening (Sources: TMB Analytics dated January 17, 2020, the website of the Transport Statistics Sub-Division, Planning Division, the Department of Land Transport on January 2020). Moreover, in 2019, there was additional construction of the mass rapid transit systems in Bangkok and its surrounding provinces, together with infrastructure construction, along with the problem of on-street parking as a hindrance to the traffic and violation of traffic rules, the traffic congestion problems then continued endlessly and inevitably, thereby having an impact on the growth of the traffic volume on the expressways as a whole.

8) **Procurement of Products and Services of Expressway Business**

• **Nature of Procurement of Products of Expressway Business**

EXAT is an authority responsible for the construction of expressways to provide service for convenient, rapid and safe traffic, as well as to mitigate traffic problems. EXAT invited interested parties to submit investment proposals; the Company then conducted a feasibility study and submitted its proposals for investment in projects with appropriate returns and conditions.

The expressway projects under the Second Stage Expressway Agreement, the Bang Pa-in - Pak Kret Expressway Agreement, the Agreement for Extension of the Second Stage Expressway (Sector D), and the Concession Agreement for the Si Rat - Outer Ring Road Expressway Project are implemented on a BTO basis. According to the essence of the Agreements, EXAT shall have the duty to determine the characteristics of the expressways, expressway routes and areas to be used for construction and arrange for land expropriation for delivery to the Company for construction within the time specified in the Agreements. Thereafter, the Company would carry out construction in accordance with the designs approved by EXAT, subject to the supervision of the quality of construction work by EXAT's Consulting Engineer, Independent Certification Engineer, and Independent Design

Checker. Upon completion of the construction, the Independent Certification Engineer shall inspect the work and issue Certificate of Completion to evidence that the construction work is completed in accordance with the specified standards and is ready for service, at which time, the Company shall be entitled to obtain toll revenue under the conditions of the Agreements. In the previous constructions, the Company engaged project managers to carry out construction and operate the Expressway Projects on a lump sum turnkey basis. This was due to the fact that the expressway projects are large-scale projects, which may sustain cost overrun issues and delayed completion of the construction. The lump sum turnkey engagement is intended to prevent such risk. In the engagement of project managers, the Company will select specialists with experience to act as project managers and construction contractor to ensure the accomplishment of quality work on time.

With respect to the Si Rat-Outer Ring Road Expressway Project, the Company and EXAT executed the Concession Agreement for Investment, Design, Construction, Operation, Service and Maintenance of the Project on September 14, 2012, for a concession period of 30 years from December 15, 2012 to December 15, 2042, and with a construction period of not exceeding 48 months. EXAT shall determine the expressway route and areas to be used for construction and arrange for land expropriation for delivery to the Company within the specified time. The Company shall have the duty to carry out the design and construction in accordance with the designs approved by EXAT, subject to the supervision of the quality of construction work by EXAT's Engineer and Independent Certification Engineer. Upon completion of the construction, the Independent Certification Engineer shall inspect the work and issue Certificate of Completion to evidence that the construction work is completed in accordance with the specified standards and is ready for service. The Company engaged CH. Karnchang Public Company Limited, which specializes and has extensive experience in construction and management of all expressway projects under the concessions of the Company, to act as project manager and construction contractor as well as the operator of the project on a lump sum turnkey basis.

Under this Concession Agreement, the Company shall have the right to manage and provide service, e.g., toll collection, rescue operation, and maintenance, whereby the Company shall be entitled to receive all tolls throughout the concession period.

9) Environmental Impact (Expressway Business)

The Company and its subsidiaries have always operated the construction and expressway business with environmental responsibility, by adhering to the business guidelines which can be summarized as follows:

In the construction of the expressways, the Company and its subsidiaries complied with the measures to prevent pollution in accordance with the regulations of the National Environment Committee and other relevant laws, which form an integral part of the Agreements. The Company and the subsidiaries implemented the measures and procedures as appropriate for the construction carried out in the urban areas with high populations. In so doing, the Company employed the Segmental Box Girder construction technique, which allowed it to complete the construction faster than other techniques in those days, so as to prevent any impact to nearby communities and affect the at-grade traffic at the least possible extent during the construction. Furthermore, the Company had no records of committing any environment-related offenses.

Even during the course of the operation of the expressway systems, the Company remained concerned about the eco-friendly business operations affecting the quality of life of staff, motorists and communities surrounding the expressways, including all groups of stakeholders. The Company improved and reviewed its internal procedures to conform to the environmental requirements for applying for the Certificate of ISO 14001 Environmental Management System. The Company has its commitment to ensuring environmental management in line with the following guidelines:

- To give priority to pollution prevention and control by managing and maintaining the expressways to meet international standards and keeping in mind the environmental impact on motorists, staff, and communities;
- To instill and encourage our staff with an awareness of efficient use of energy and natural resources;
- To comply with the environment-related laws and regulations;
- To review the purposes and goals for continued improvement of the environmental management system;
- To communicate our environmental policy to the public and all parties concerned.

Besides, the Company obtained certification from SGS (Thailand) Limited as follows:

- ISO 9001: 2015 Quality Management System; and
- ISO 14001: 2015 Environmental Management System.

In 2019, the Company continued to maintain the ISO 14001 Environmental Management System, by monitoring important environmental concerns, as well as optimizing the use of natural resources through its continued energy management measures, as follows:

1. Replacement of the existing lamps in the Toll Plaza of the Si Rat - Outer Ring Road Expressway (Sector D), thereby saving up to 45 percent of energy, when compared to the existing lamps.
2. The project to install solar cells on the Toll Plaza and the Control Center of the Si Rat Expressway - Outer Ring Road Expressway, thereby saving up to 25 percent of energy from the Metropolitan Electricity Authority for the Toll Plaza and 11 percent for the Control Center.

With respect to safety management, the Company had an engineering analysis agency comprising knowledgeable and skilled personnel in traffic engineering and safety on the expressways to conduct studies on impacts from various factors. A traffic simulation was made for study of the suitability in the improvement of physical characteristics at the front areas of toll plazas, as well as inspection of road safety; analysis of risk areas on expressways; study of features and patterns in the installation of safety equipment, in order to improve the expressways to ensure the maximum safety for motorists, as well as to minimize environmental impact. The Company then put such study results into practice as follows:

- The safety on expressways was improved by inspecting and assessing the safety of the gore areas and installing safety equipment, e.g., crash cushions, cushion tanks, flexible guide posts, red-colored cold plastic road paint to alert for high accident risk areas.

The Company continued to provide training for staff and executives on know-how and techniques for environmental management in accordance with the ISO 14001 : 2015 Environmental Management System, as well as various activities to raise awareness of environmental protection in the organization and social contributions in association with the communities nearby.

2.1.2 Rail Business

1) Nature of Services

The Company has been granted concessions for two mass rapid transit rail system projects by the Mass Rapid Transit Authority of Thailand (“MRTA”), as per the following details:

- (1) **The M.R.T. Chaloem Ratchamongkhon Line Project** (“MRT Blue Line Project”): the Company executed the Concession Agreement with MRTA on March 31, 2017, for a period of 33 years from MRTA’s Notice to Proceed. The Company is entitled to fare box revenue as well as undertaking activities and commercial development, including advertising, leasing space and telecommunications services in the metro stations and in the trains of the M.R.T. Chaloem Ratchamongkhon Line Project, for a period of 30 years from the date the entire route is opened for service. This is to ensure the Through Operation, with the Company having entitlement to farebox revenue as well as commercial development throughout the

concession period of the Project. The M.R.T. Chaloem Ratchamongkhon Line Project is consisted of Hua Lamphong-Bang Sue Section, Hua Lamphong-Bang Khae Section, and Bang Sue-Tha Phra Section, per the details below:

- **Hua Lamphong - Bang Sue Section**, which is the first underground metro system of Thailand, covering the distance of 20 kilometers, with 18 stations, which was in service on July 3, 2004. The Company is entitled to farebox revenue as well as undertaking activities and commercial development, including advertising, leasing space and telecommunications services in the metro stations and in the trains.
- **Hua Lamphong - Bang Khae Section and Bang Sue - Tha Phra Section**, covering the distance of 28 kilometers, which is the underground and elevated route, with a total of 20 stations, divided into 4 underground stations and 16 elevated stations, having a connection with the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line) at Hua Lamphong Station and Bang Sue Station, as well as connecting with the M.R.T. Chalong Ratchadham Line Project (MRT Purple Line) at Tao Poon Station. The Company is responsible for investment, supply, installation, testing and commissioning of the M&E Equipment, whereby the supply and installation of the M&E Equipment for opening for service are divided into three sections, namely:
 - Section 1: Bang Sue Station - Tao Poon Station, in service on August 11, 2017;
 - Section 2: Hua Lamphong Station - Lak Song Station, with a partial station phase starting to open for trial runs and connecting with Section 1 of the Project to allow the people to take free trial runs to Lak Song Station from July 29, 2019 for a period of two months; and with the official full service opening to Lak Song Station on September 29, 2019 at normal charges; and
 - Section 3: Tao Poon Station - Tha Phra Station, starting to open for the people to take free rides on December 23, 2019, with the official service opening scheduled to take place in March 2020, by having Tha Phra Station as the main interchange station which enables the passengers to change their destination from Tha Phra Station to travel to the suburban area westward via Bang Phai Station to Lak Song Station or travel to the urban area via Itsaraphap Station to Hua Lamphong Station, as well as travelling to Tao Poon Station connecting with the M.R.T. Chalong Ratchadham Line Project (MRT Purple Line). Upon the full service opening of the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line), a total of 54 trains would be available for service, every day from 06.00 - 24.00 hours.

- (2) **The M.R.T. Chalong Ratchadham Line Project** (“MRT Purple Line Project”), Khlong Bang Phai Station - Tao Poon Station, covering a distance of 23 kilometers, with a total of 16 elevated stations, where Tao Poon Station is located as an interchange station with Bang Sue Station of the M.R.T. Chaloem Ratchamongkhon Line, making it possible for passengers’ interchange from the MRT Purple Line to the MRT Blue Line at Tao Poon Station, which in the future, would be connected with the MRT Purple Line (Tao Poon - Rat Burana Section).

The Company has been granted the concession for investment, the supply of M&E Systems and O&M Services, on a PPP Gross Cost basis. That is, MRTA invests in all civil works and the Company invests in the M&E Systems and the rolling stocks, as well as provides the operation and maintenance services in accordance with the specified service standards. MRTA is entitled to all fare box revenue and commercial development revenue from the utilization of the civil infrastructure and the railway systems and MRTA shall make gradual repayment for the M&E Systems to the Company on a monthly basis for a period of 10 years, and engage the Company to conduct the operation and maintenance throughout the concession period of 30 years from September 4, 2013.

There is a total of 21 trains available every day without holiday, from 5.30 - 24.00 hours on Mondays - Fridays, and from 6.00 - 24.00 hours on Saturdays - Sundays and public holidays.

Projects	Chaloem Ratchamongkhon Line (MRT Blue Line)		Chalong Ratchadham Line (MRT Purple Line)
	(Hua Lamphong Station - Bang Sue Station)	(Hua Lamphong Station - Lak Song Station and Bang Sue Station - Tha Phra Station)	(Khlong Bang Phai Station - Tao Poon Station)
Concession Type	PPP Net Cost	PPP Net Cost	PPP Gross Cost
Concession Period	33 years (from MRTA's Notice to Proceed)		30 years (2013-2043)
Number of Stations	18 stations	20 stations	16 stations
Distance	20 kilometers	28 kilometers	23 kilometers

2) Revenue

The Company's revenues from the rail business can be divided into two categories, comprising farebox revenue and revenue from O&M services.

- **Farebox revenue**

Pursuant to the Concession Agreement for the MRT Blue Line Project between the Company and MRTA, the Company has the right to operate the train and collect farebox revenue and undertake commercial development throughout the concession period. The Company is obliged to make payment of remuneration from fares and commercial development to MRTA at the rates as mentioned in the Concession Agreement.

The fare rates of the metro as of the commencement date would be in accordance with the basic reference fare rates in force at the time of the revenue service commencement date. Under the Concession Agreement, the reference fare rates would be adjusted every 24 months based on the actual changes of the Bangkok Non-Food Consumer Price Index compared to the basic reference fare rates.

The Company adjusted the fare rates under the terms of the Concession Agreement accordingly. The current fare rates in force were adjusted on July 3, 2018, which will remain in force until July 2, 2020.

- **Revenue from O&M Services**

The Company receives service fees for train operation and maintenance from the MRT Purple Line Project Concession Agreement, Contract 4, Concession for Supply of M&E Systems and O&M Services (Khlong Bang Yai Station-Tao Poon Station), Phase 2 (for a period of approximately 27 years). The service opening commenced on August 6, 2016.

3) Marketing and Competition of Rail Business

- **Customer Characteristics and Target Customers**

The Company's target customers can be divided into two groups, namely, residents nearby the metro routes and those who need to pass or head for other destinations along the metro routes, and categorized by purposes of journeys as follows:

1. Commute for work;
2. Commute to schools/educational institutes;
3. Commute by tourists/for leisure;
4. Commute for special activities, e.g., seminars or conferences; and
5. Commute for other purposes, e.g., business dealings.

4) **Marketing Policy and Strategies of Rail Business**

• **Service and Product Strategies of Rail Business**

○ Creativity and Development of Convenient Services for MRT Passengers

The M.R.T. Chaloe M Ratchamongkhon Line (MRT Blue Line) has the route from Tao Poon Station to Hua Lamphong Station, and in the third quarter of 2019, Hua Lamphong Station until Wat Mangkon Station to Lak Song Station was opened for service, and in December 2019, Hua Lamphong - Bang Khae Section was opened for the people to take free trial runs. Upon the full service opening of the system, it would cover the total distance of 48 kilometers, passing through central business districts (CBD), residential areas, and connecting with the significant mass rapid transit systems which would result in an increase in the number of passengers, e.g., connection with the Green Line (BTS) at Silom Station, Sukhumvit Station, Chatuchak Park Station, and Bang Wa Station, the Red Line (Airport Rail Link) at Phetchaburi Station connecting with the Suvarnabhumi Airport and connecting with the M.R.T. Chalong Ratchadham Line (MRT Purple Line) at Tao Poon Station, together with connections with the SRT train stations at Hua Lamphong Station and Bang Sue. There are currently six transit connections between the metro stations and buildings, including:

- Chamchuri Square and Samyan Mitrtown (residential, office and edutainment complex) at Sam Yan Station;
- Union Mall at Phahon Yothin Station;
- Interchange 21 Tower (office building) and Terminal 21 Tower (shopping center, hotel, office, and residential building) at Sukhumvit Station;
- Central Plaza Grand Rama 9 and G Tower at Phra Rama 9 Station;
- Seacon Bangkhae at Phasi Charoen Station; and
- The Mall Bangkhae at Lak Song Station.

Traveling behavior of service users mostly accounts for work, followed by for education, which would be heavily travelled during rush hours. While in respect of off-peak journeys, the system still has the potential to accommodate a higher number of service users. The Company thus strategically reduces the density of the passengers during rush hours to be consistent with the factor for selection of use of service of the passengers; reduce time the service users take to use the service and provide greater convenience of travelling, by holding an activity with its effort to encourage passengers to adjust their travelling behavior to leave early, titled “MRT Lucky Hour for Early Birds”, and also strategically increases the number of the service users using the metro cards to ensure convenient journeys, save time the service users take within the stations, and to increase revenues for the Company, by way of provision of additional privileges in the metro cards in alliance with various partners, such as, to provide a discount on a metro card issuance or top up or provide special benefits to the cardholder passengers.

○ Quality Services

The Company focuses on quality services on the motto “Service above all else” so that the MRT service becomes “lifestyle of Bangkok residents” under the Company’s professional operations. Various activities have been undertaken to promote the image of the current MRT services and create value added to Bangkok residents’ lifestyle. Based on this policy, the Company sets out the following signs for quality services:

- Safety: The MRT passengers’ life and property safety is the Company’s top priority. All staff must be well aware of and expected to strictly follow the Company’s safety requirements. In the past, the Company conducted regular training on safety and supervised to ensure that the Company’s services meet Thailand’s safety standard requirements and comparable to those of the world’s leading mass rapid transit operators.

- Convenience: The Company takes care of all equipment and facilities in the MRT system to function properly, and proactively facilitates the passengers' convenient commute during high seasons, such as festival events and activities or exhibitions along the routes, by arranging for more ticketing points to best serve the passengers.
 - Fast: The Company keeps the average train speed aligned with the timetable in response to passengers' needs during different periods.
 - Reliability: The Company maintains the trains and signaling systems in good conditions without any impact on its services.
 - Punctuality: The Company keeps the timetable and stops time at every station punctual with the least possible deviations.
- Metro Cards for Everyone

The Company analyzes the customer characteristics and target customers, both regular and non-regular passengers, and then plans for and produces various styles of metro cards to suit every group of customers and to attract non-regular passengers to increasingly use the MRT cards in travelling. These arrangements comprise keeping styles of metro cards modern to ensure conformity with technology and increase in efficiency of metro cards to ensure that metro cards can be commonly used with the MRT Blue Line and the MRT Purple Line; cooperation with financial institutions in issuing co-branded cards for financial transactions and travelling on the MRT system, namely, in alliance with KASIKORNBANK Public Company Limited to make cards for Chulalongkorn University and Chulalongkorn Hospital; to make co-branded cards with other institutions or agencies. Moreover, there was the launch of a product in a form of top up voucher for interested organizations, for instance, Ananda Development Public Company Limited to distribute as welfare for its staff to top up their metro cards.

• **Price Strategy of Rail Business**

The Company collects distance-related fares in fairness to passengers according to different distance of their journeys and provides discounts to school/college students, and children/elderly, by taking into account the fare rate collection of other mass rapid transit systems. The fare rates are adjusted in accordance with the relevant Concession Agreements.

• **Marketing Promotion Strategies of Rail Business**

The Company's classification of target customers is intended to draw up a strategy on sales promotion to effectively cover all target customer groups. As such, the Company's sales promotion and marketing plans based on target customers' lifestyle and settings are described as follows:

- To promote the park and ride facilities to encourage more passengers to park their personal cars at the service locations and use the MRT service to commute to such business districts as Sukhumvit Road, Silom Road, Ratchadaphisek Road, in order to help alleviate traffic congestion and minimize global warming.
- To accept credit card payments for passengers' greater convenience, collaborate with leading companies and banks, namely, Advanced Wireless Network Public Company Limited (AIS), Muang Thai Life Assurance Public Company Limited, FWD Life Insurance Public Company Limited, Ocean Life Insurance Public Company Limited, the Mall Group (M Card), Boonrawd Trading Co., Ltd. (Singha Rewards), to provide discounts on metro card top ups, provide cash back, including KTC, Citibank, UOB, Bank of Ayudhya credit card reward points in order to create value added to the MRT service, and offer special benefits to metro card holders with an aim to change passengers' behavior from using token to using metro cards for the sake of convenience and special benefits.

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- To increase the number of passengers or trips in the system through information services on highlighted events along the MRT routes, and offer various types of customized metro cards bearing specific logos or signs of agencies, organizations, office buildings or hotels both along and beyond the routes, for public relations and sales promotion, in order to distribute the metro cards to both current and new target customers.
 - To create the Customer Relations Management by carrying out management of the data system of MRT club members, and build a network and good relationship with the general service users under the CRM process, as a central mechanism for loyalty marketing, by focusing on efficient and effective response to ensure passengers' satisfaction by using social network channels and public relations media within the stations, including booths showcasing activities inside and outside the routes, as well as in alliance with partners on the win-win strategy to organize special activities for the passengers.
 - To create brand loyalty and awareness through various activities to promote marketing campaigns, rewards to customers and society, and corporate image towards young customers and passengers by creating value added collaboration on a regular basis, namely, building relationships with alliances to seek privileges for the cardholder passengers in a form of discounts on shops, restaurants, movie theaters or events surrounding the MRT route.
 - To develop the electronic payment system for online top-up and mobile payment with TrueMoney Wallet, and draw up a plan to develop the electronic payment system for retail shops within Metro Mall to make it more convenient and rapid for the MRT passengers.
 - To encourage the people to use government welfare smart cards in travelling with the MRT system, by improving the automatic fare collection systems (AFC) of the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line) and the M.R.T. Chalong Ratchadham Line Project (MRT Purple Line) to accommodate usage of their government welfare smart cards.
 - To apply the EMV Contactless Transit system to the electronic payment with efficiency, safety and standard, via a credit or debit card with which the passengers can pay fares, in lieu of paying with metro cards. Nowadays, England and Singapore have adopted such EMV system to payment of electric train fares to ensure convenient and rapid journeys. Currently, the feasibility study of the system is pending.
- **Marketing Communication Strategies of Rail Business**
 - To select effective channels of communication and public relations which are accessible to target groups of different marketing events through management of space and flows in the MRT system, e.g., standees within the stations, visual display on the token machines, event calendar media on monitors, digital media, social network media, including external public relations media from the alliances to provide service users with journey information in the MRT system. The Company also has emphasized development of the Mobile Application titled Bangkok MRT Application to accommodate travelling plans of the passengers.
 - To focus on publicizing news and information to current service users, including new customers, via booths presenting the use of the service, both inside and outside the routes, with provision of useful advice and information, such as, information on privileges of the metro cards, application for the MRT club membership, introduction of the MRT lucky hour activity, contact channels via social media and Bangkok MRT Application, with an aim of
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stimulating provision of information on services and privileges to the service users. In 2019, the public relations for Happy Blue Line Again in 2019 were prioritized, by emphasizing the punctuality, convenience, fast journey, family time-saving, and definite timetable.

- To create destinations via regular communication, public relations and journey information along the MRT routes via preparation of event calendar, route maps with attractive destinations, e.g., office buildings, schools, hotels, shopping centers, tourist attractions and other landmarks, information relating to convenient and rapid links to other mass rapid transit systems, which can be searched via the website and Bangkok MRT Application.
- To assure the passengers and people of the safety in travelling and service provision through public relations via television, radio and other media, and organize activities for public relations of service provision and safety-related activities at various venues, e.g., schools, office buildings, to present the safety of the MRT system to the passengers and people for their understanding and confidence in the services.

- **Development Strategy of Rail Business**

The Company adopts a strategy for regular development of quality and its services to ensure service users' utmost satisfaction with convenience, rapidity, and safety, which would attract more users of the MRT service. At present, the Company collaborates with financial institutions to hold single co-branded cards for multi-transactions.

- **Distribution Strategies and Channels of Rail Business**

The Company provides more sales outlets in addition to the ticket vending machines and ticket offices in the stations, by means of direct sales to various agencies, organizations, banks, schools, hotels, and private sectors, etc., with customized cards on various occasions, such as, gifts for staff, customers or for brand promotion and public relations materials, as a result, the metro cards become even more flexible for various uses than just for the MRT service.

5) **Industrial Outlook and Competition of Rail Business**

Mass Rapid Transit Systems in Bangkok and its Vicinity

Bangkok is a large capital city, with a dense population and various modes of transportation systems, for example, personal cars, public buses, passenger vans, metro, micro buses, taxis. The traffic problem in Bangkok has extremely intensified due to the increase in population in urban areas and the rising travel demand of people while the traffic area capacity and the public transport system are not enough to accommodate such increase, which is considered a major problem which is not different from the problem in other highly populated capital cities around the world. Thus, the government adopts a policy focusing on the development of various public transport networks to resolve the traffic problem to accommodate an increase in population and the economic growth of the country.

In this regard, traveling by residents in Bangkok can be divided into two modes of transport systems, namely, personal transport system and public transport system.

- **Personal Transport System**

People's residences in Bangkok and its vicinity are spread all over, traveling by personal cars thus is popular. The growing number of highly-paid or middle-class people and the inadequacy of the existing transport systems, and travelling expenses as compared with travelling by personal cars, as well as the service quality and safety, also have caused personal cars to become essential and convenient for traveling. In this connection, the expansion of traffic area in Bangkok remained limited and inadequate to accommodate the volume of vehicles.

- **Public Transport System**

As a result of the traffic congestion problem, particularly in peak hours, and the growth of the real estate projects surrounding the route, consumers' demand for the public transportation system of certain types was considerably high, especially for the metro system which was significantly expanding by reason of change in the urban people's behaviors of selection of residences and travelling by mainly focusing attention to convenience and rapidity in travelling.

- **Public Bus Service**

At present, there are various types of public buses for service at different service rates, but the number of public buses in service in Bangkok and its vicinity remained inadequate, owing to the fact that a certain number of buses were undergoing improvement and rearrangement of bus routes was made, even if there was currently a total of 13,461 buses in service, let alone more than 4,000 passenger vans which became enormously popular among the people because of provision of its convenient and rapid service in travelling. In this regard, the Bangkok Mass Transit Authority (BMTA) launched its buses with development of technology to make it compatible with the GPS system and the E-Ticket system for service on many routes. Moreover, on October 1, 2019, the BMTA buses arranged for the service users' another optional method for payment of fares by welcoming the cashless payment to enable the service users to pay fares with government welfare smart cards, E-Ticket of the BMTA, QR Code via Mobile Banking (Application), and contactless-enabled credit or debit cards.

Nevertheless, as a result of the problem of the ongoing traffic congestion on roads, especially during rush hours in the morning from 6:30 to 8:30 hours, and in the evening from 16:30 to 18:30 hours, and in the rainy season, traveling is inefficient and time-consuming, not to mention the impacts from the safety issues in the services and the pollution produced by the vehicle exhaust system, including air pollution PM 2.5 in excess of the limited standards and detrimental to the people's health.

- **Trains**

In the past, the government sector formulated a policy to satisfy the low-income earners' requirements to use the government welfare smart cards for their spending, in a manner which the government welfare smart cardholders were able to use such card for travelling by buses, passenger vehicles served by The Transport Co., Ltd. and trains for free in the amount not exceeding Baht 500 per travelling mode per month. Unfortunately, there remained a lack of convenience and safety owing to unpleasant train condition and non-air conditioning of trains, let alone the limited routes not covering the entire city, as a result, the State Railway of Thailand (SRT) expedited additional dual track rail system construction projects on many routes, together with the new depot construction project in order to accommodate old and new locomotives and for the purpose of development of the Thai railway system in accordance with Thailand's transportation infrastructure development strategy. In this regard, the SRT's train service is not considered the Company's direct competitor due to different service routes, namely, the SRT aims to provide the service to suburban areas.

- **BTS**

BTS Skytrain was Thailand's first mass rapid transit rail system on the elevated dual tracks and directions. BTS opened for service on December 5, 1999, on 2 lines, namely, Sukhumvit Line and Silom Line, and currently, extended 50.85 kilometers, with a total of 44 stations. On December 6, 2018, the Green Line (South), Bearing - Samut Prakan Section, was opened for the people to take trial runs; and on August 9, 2019, it started to open Ha Yaek Lat Phrao Station for the people to take trial runs; and on December 5, 2019, it was opened for service until Kasetsart University Station, both of which were available for service at no charge. As such, traveling by BTS Skytrain was a convenient alternative for commuters. Moreover, BTS Skytrain is intended to provide service to the heart of the city, not to mention the real estate development around the routes and connection with the MRT system, which makes it enormously popular, and thus, such factors have caused an increase in service user volume.

○ **ARL**

The Suvarnabhumi Airport Rail Link or Airport Rail Link or Airport Link is a special mass rapid transit rail system project, as part of the project for construction of suburban and commuter rail system, carried out and operated by the State Railway of Thailand (SRT). The structure of the Suvarnabhumi Airport Rail Link is both underground and elevated, with the alignment accommodating journeys from the eastern and northern outskirts, and passengers from the Suvarnabhumi Airport, to the center of Bangkok at Phaya Thai Station, covering a total of 8 stations, with a distance of 28.6 kilometers. Airport Link was opened for service on August 23, 2010. For the current service provision, a plan was set up to develop, improve the service, and the service capacity of a total of 9 Airport Rail Link trains showed the service stability, which could satisfy the growing needs of the passengers.

As a result of an ongoing increase in a number of the public transport system service users, it reflected the change in travel behavior of residents in Bangkok and its surrounding provinces from using personal car to use the public transport system. This indicated the development in terms of convenience, rapidity, safety and the extended coverage areas of travelling to ensure transit in the through operation system at present. However, owing to the traffic congestion, air and noise pollution, and potential accidents, the transit rail system is then regarded as a significant milestone for change and development of the mass rapid transit systems in Bangkok and its vicinity, which will help alleviate traffic problems, ensure safe, convenient and rapid journeys of service users, and result in a positive effect on the economy and environment. Therefore, the mass rapid transit system represented a traveling mode, which helped improve the quality of life of urban people and reduce the usage of national resources.

6) Industrial Outlook and Government Policy of Rail Business

Thailand's overall economic outlook in the third quarter of 2019 expanded by 2.4 percent, when compared to 2.3 percent of the previous quarter, therefore, in the first nine-month of 2019, the Thai economy grew by a total of 2.5 percent, significantly resulting from an expansion of consumption and investment of the private sector and the continued expansion of spending and investment of the government sector (*Source: Office of the National Economic and Social Development Board*).

In the field of development of the transport system, the Ministry of Transport took a step forward to develop Thailand's transportation system to be a mechanism in driving the country's steady economic growth. In so doing, the infrastructure development in terms of transportation would be aimed to cover the nationwide areas to enable it to seamlessly accommodate the multimodal transportation and journeys; with the significant strategic plan for transport development, particularly the metro projects, to solve traffic problems in Bangkok and its vicinity. The government sector has given priority and managed to ensure each metro project's opening for service according to schedule. That was, on September 29, 2019, the M.R.T. Chaloem Ratchamongkhon Line (MRT Blue Line), Section 2: Hua Lamphong - Bang Khae was opened for the full service with charge; and on December 23, 2019, Section 3: Tao Poon - Tha Phra was opened for the people to take free trial runs, with its full service opening on a circle line basis to take place in March 2020. Moreover, the government sector has expedited construction of another three MRT projects, namely, the MRT Orange Line, Thailand Cultural Centre - Min Buri (Suwinthawong) to open for service in 2023, Bang Khun Non - Thailand Cultural Centre to open for service in 2026; the MRT Pink Line, Khae Rai - Min Buri; and the MRT Yellow Line, Lat Phrao - Samrong to open for service in 2021. The MRT projects to be proposed for the Council of Ministers' approval of construction or pending design study included four projects, i.e., the MRT Purple Line (South), Tao Poon - Rat Burana (Kanjapisek Road), the MRT Pink Line Extension, Si Rat - Mueang Thong Thani; the MRT Yellow Line Extension, Yaek Ratchada - Lat Phrao - Yaek Ratchayothin; and the MRT Brown Line, Khae Rai - Lam Sali (Bueng Kum). Furthermore, another three projects to be pushed forward by the Bangkok Metropolitan Administration were the MRT Grey Line, Section 1: Watcharaphon - Thong Lor; the MRT Grey Line, Section 2: Phra Ram 3 - Tha Phra; and the Bangna-Suvarnabhumi Line Project, due to such three projects' location in the areas which have encountered the traffic problems and needed to be provided with the public transportation system with greater convenience and connectivity. Currently, it is in the process of budgetary proposal

for study and review of the projects' details, including a form of investment, with its conclusion expected to achieve in 2020. All of the projects have been accelerated by the government sector in accordance with the Strategic Development of Transport Infrastructure of Thailand, with an aim of building the metro networks which cover more service areas and serves as alternative means of travelling with definite timetable, convenience, rapidity and safety, as well as helping reduce environmental problems, improve the quality of people's life, thereby allowing the country's continuous and sustainable development.

In this regard, the government sector's role in stimulating the economy through its expenditure and investment was considered the most crucial factor which would have an influence on the future economic situation. Giving priority to investment in infrastructure projects, particularly in the transportation system, would help make travelling and transport of goods convenient, which would attract Thai and foreign investments from the private sector and strengthen the economy conducive to the sustainable growth in the future.

Real estate development around the metro routes

As a result of the continued economic growth in 2019, the real estate market continued to grow, especially the real estate market surrounding the metro routes which became hugely popular. Nevertheless, there remained less land left and land prices were rising dramatically during the previous year, resulting in the real estate development to ensure the optimal benefit. While development of the mixed-use real estate project started to play a key role and seemed massively popular among the large real estate operators, whereby many of the projects are located along the MRT routes. Moreover, it was evidenced by a diverse selection of new condominium launches, particularly those which were around the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line), Hua Lamphong - Bang Khae Section and Bang Sue - Tha Phra Section, as opened for service in 2019. It also included development of areas surrounding the MRT stations, namely, on December 13, 2018, there was the grand opening of Singha Complex, the Luxury Mixed Use Complex, on Asoke-Phetchaburi Road, connecting to Phetchaburi Station, regarded as the potential landmark and new transportation hub; and on September 20, 2019, Samyan Mitrtown, new mixed use project, was officially opened for service, connecting to Sam Yan Station and serving as one of the tourism destinations, which would become attractive to investors.

The development of the public transport system to cover the wide-areas of Bangkok and its surrounding provinces became a key factor in accelerating the real estate development in various forms, such as, condominiums, building offices, shopping centers, markets, most-visited tourist attractions, hotels, apartments, restaurants and supermarkets, to ensure that they were growing rapidly accordingly.

7) Progress of Development of the Mass Rapid Transit Systems under the Government Policy

Project	Current Status of Project
SRT Dark Red Line (North - South) Suburban railway system, divided into 4 phases, covering a total distance of 80.5 km.: <u>Phase 1:</u> Bang Sue - Thammasat (Rangsit campus) <u>Phase 2:</u> Bang Sue - Hua Lamphong <u>Phase 3:</u> Hua Lamphong - Bang Bon <u>Phase 4:</u> Bang Bon - Mahachai	Bang Sue - Rang Sit, with a distance of 26 km. - SRT is proceeding with the following: <u>Contract 1:</u> Civil Work for Bang Sue Station and Depot, SRT executed the agreement for engagement of SU Joint Venture (Sino-Thai Engineering & Construction Public Company Limited and Unique Engineering and Construction Public Company Limited) on January 18, 2013. <u>Contract 2:</u> Civil Work for Bang Sue - Rang Sit Section, SRT executed the agreement for engagement of Italian-Thai Development Public Company Limited on January 31, 2013. <u>Contract 3:</u> M&E System, including the supply of carriages SRT executed the agreement for engagement of MHSC Joint Venture (MITSUBISHI Heavy Industrial Ltd., Hitachi and Sumitomo Corporation) on March 29, 2016.

Project	Current Status of Project
	<ul style="list-style-type: none"> - On November 1, 2019, SRT and MHSC Joint Venture accepted the delivery of the first two trains with 10 bogies, which would gradually accept the delivery until completion of a total of 25 trains in and around mid-2020, with the trial run to be taken in October 2020. Currently, SRT is conducting the unofficial test runs. - It was expected to open for service in January 2021. <p>Rangsit - Thammasat, with a distance of 8.84 km.</p> <ul style="list-style-type: none"> - The project was already approved on February 26, 2019. Currently, the Royal Decree on Land Expropriation is being prepared. The construction was expected to complete in and around 2023.
<p>SRT Light Red Line (West - East)</p> <p>SRT's suburban railway system, Bang Sue - Taling Chan, Taling Chan - Salaya, and Bang Sue - Makkasan - Hua Mak, covering a total distance of approximately 48 km.</p>	<p>Bang Sue - Taling Chan, with a distance of 15 km.</p> <ul style="list-style-type: none"> - SRT engaged Unique - Chun Wo Joint Venture to carry out the construction. The construction was 100% completed. - It is in the process of system installation and the trains would be accepted in June-July 2020, with the service opening expected to take place in January 2021. <p>Bang Sue - Phaya Thai - Makkasan - Hua Mak, with a distance of 19 km.</p> <ul style="list-style-type: none"> - The project was in the process of design revision to make it compatible with the hi-speed rail linked 3 airport projects, whereby both projects would use the foundation together in the area of Chitralada Royal Villa. <p>Taling Chan - Salaya, with a distance of 14.8 km.</p> <ul style="list-style-type: none"> - The project was already approved on February 26, 2019. - Currently, it is in preparation for a bid, with a qualified contractor expected to acquire in June-July. <p>Taling Chan - Siriraj, with a distance of 5.7 km.</p> <ul style="list-style-type: none"> - The project was already approved by the Council of Ministers on March 5, 2019. Currently, it is in preparation for a bid, with a qualified contractor expected to acquire in June-July 2020.
MRT Blue Line Extension	<p>Bang Sue - Tha Phra and Hua Lamphong - Bang Khae, with a distance of 28 km.</p> <ul style="list-style-type: none"> - Hua Lamphong - Bang Khae was opened for official service on September 29, 2019. - Bang Sue - Tha Phra was opened for the people to take free trial runs on December 23, 2019, with the official service opening scheduled to take place in March 2020. <p>Bang Khae - Phutthamonthon Sai 4 (with a distance of 8 km.)</p> <p>It was in the process of consideration and review of passenger volume and justification of the project by the Ministry of Transport.</p>
MRT Green Line	<p>Mo Chit - Saphan Mai - Khu Kot, with a distance of 18.4 km.</p> <ul style="list-style-type: none"> - MRTA executed the civil work contracts, Contracts 1-4, on April 3, 2015, as follows: <p><u>Contract 1:</u> (Civil Works), Mo Chit - Saphan Mai, with a distance of 12 kilometers, operated by Italian-Thai Development Public Company Limited;</p> <p><u>Contract 2:</u> (Civil Work), Saphan Mai - Khu Kot, with a distance of 7.5 kilometers, operated by UN-SH-CH Joint Venture (Unique Engineering and Construction Public Company Limited, Sinohydro Corporation Limited, and China Harbour Engineering Company Limited);</p> <p><u>Contract 3:</u> (Depot and Park & Ride Facilities) operated by STEC-AS-3 Joint Venture (SINO-Thai Engineering and Construction Public Company Limited, A.S. Associated Engineering (1964) Co., Ltd.);</p> <p><u>Contract 4:</u> (Design and Construction of Trackwork) operated by STEC-AS-3 Joint Venture (SINO-Thai Engineering and Construction Public Company Limited, A.S. Associated Engineering (1964) Co., Ltd.).</p>

Project	Current Status of Project
	<ul style="list-style-type: none"> - On August 9, 2019, another station, namely, Ha Yaek Lat Phrao Station, was opened for service. - On December 5, 2019, another four stations were opened for service, namely, Phahonyothin 24 Station, Ratchayothin Station, Sena Nikhom Station, and Kasetsart University Station. <p>Bearing - Samut Prakan, with a distance of 12.8 km.</p> <ul style="list-style-type: none"> - On April 1, 2017, one station, namely, Samrong Station, was opened for service. - On December 6, 2018, the project was opened for free trial runs from Samrong Station - Kheha Samut Prakan Station, with fares charged according to distance expected to collect in 2020.
MRT Orange Line	<p>MRT Orange Line, Bang Khun Non - Min Buri (Suwinthawong)</p> <ul style="list-style-type: none"> - On January 28, 2020, the Council of Ministers resolved to approve the MRT Orange Line Project, Bang Khun Non - Min Buri (Suwinthawong), on a PPP Net Cost basis, for a period of 30 years. <p>Thailand Cultural Centre - Min Buri, with a distance of 20 km.</p> <ul style="list-style-type: none"> - On December 9, 2017, the contract signing ceremony was held for the civil work construction of the MRT Orange Line Project between MRTA and contractors as winning bidders in Contracts 1, 2, 3, 4, 5 and 6, as follows: <p><u>Contract 1:</u> (Civil Work), Thailand Cultural Centre - Soi Ramkhamhaeng 12, operated by CKST Joint Venture (CH. Karnchang Public Company Limited and Sino-Thai Engineering & Construction Public Company Limited);</p> <p><u>Contract 2:</u> (Civil Work), Soi Ramkhamhaeng 12 - Hua Mak, operated by CKST Joint Venture (CH. Karnchang Public Company Limited and Sino-Thai Engineering & Construction Public Company Limited);</p> <p><u>Contract 3:</u> (Civil Work), Hua Mak - Khlong Banma, operated by Italian-Thai Development Public Company Limited;</p> <p><u>Contract 4:</u> (Civil Work), Si Yaek Banma - Suwinthawong, operated by Unique Engineering and Construction Public Company Limited;</p> <p><u>Contract 5:</u> (Civil Work), Depot and Park & Ride Facilities, in the area of MRTA's office, Phra Ram 9 Road, operated by CKST Joint Venture (CH. Karnchang Public Company Limited and Sino-Thai Engineering & Construction Public Company Limited);</p> <p><u>Contract 6:</u> Design and Construction of Trackwork, operated by Unique Engineering and Construction Public Company Limited.</p>
MRT Yellow Line	<p>Lat Phrao - Samrong, with a distance of 30.4 km.</p> <ul style="list-style-type: none"> - On May 30, 2017, the Council of Ministers resolved to approve the results of selection of the private entity and draft Concession Agreement for the MRT Yellow Line Project, in collaboration with BSR Joint Venture (comprising BTS Group Holdings Public Company Limited, Ratchaburi Electricity Generating Public Company Limited and Sino-Thai Engineering & Construction Public Company Limited). - On June 16, 2017, MRTA signed the Concession Agreement with BSR Joint Venture. - On August 27, 2018, the construction of the project officially commenced, for a construction period of 39 months (3 years and 3 months). It was expected to complete and open for service in 2021.

Project	Current Status of Project
MRT Pink Line	<p>Khae Rai - Min Buri, with a distance of 34.5 km.</p> <ul style="list-style-type: none"> - On May 30, 2017, the Council of Ministers resolved to approve the results of selection of the private entity and draft Concession Agreement for the MRT Pink Line Project, in collaboration with BSR Joint Venture (comprising BTS Group Holdings Public Company Limited, Ratchaburi Electricity Generating Public Company Limited and Sino-Thai Engineering & Construction Public Company Limited). - On June 16, 2017, MRTA signed the Concession Agreement with BSR Joint Venture. - On August 27, 2018, the construction of the project official commenced, for a construction period of 39 months (3 years and 3 months). It was expected to complete and open for service in 2021.

Sources: www.railway.co.th, www.mrta-purpleline.com, www.bts.co.th, www.bkkmrt.com, and information collected by the Company.

8) Procurement of Products or Services of Rail Business

• Nature of Procurement of Products

The mass rapid transit system projects were awarded to the Company by the way of concessions from MRTA, a state agency established and existing under the “Mass Rapid Transit Authority of Thailand Act B.E. 2543 (2000)” to operate the mass rapid transit systems in Bangkok and its vicinity, including other designated provinces, with safety and efficiency. MRTA is a state enterprise under the supervision of the Minister of Transport. The Company specializes in the metro business, conducts the project feasibility studies, and submits its investment proposals for such projects with appropriate returns and conditions. The existing concession projects were awarded for investment, supply of rolling stocks, operation and maintenance, whereby the government sector invests in all civil infrastructure, namely, stations and facilities, tunnels, ventilation systems and trackwork, etc., while the Company invests in the railway systems, namely, rolling stocks, signaling and operation systems, communications and SCADA systems, power supply, automatic fare collection, platform screen door, and depot workshop systems, etc.

The M.R.T. Chalerm Ratchamongkhon Line Project (MRT Blue Line)

The Company engaged Joint Venture CKET as the MRT project manager (Project Manager) for the MRT Blue Line, Bang Sue - Hua Lamphong Section (from August 2000 to July 2009) to manage technical operations, such as procurement of the M&E Equipment as ordered from manufacturers and liaison with contractors and relevant authorities regarding the installation of the M&E Equipment. Upon expiration of the engagement agreement of CKET for project management, the Company was able to efficiently administer and manage the MRT Project, as well as improve and develop the efficient service provision on its own. In regard to the supply and maintenance of the M&E Equipment, the Company engaged Lincas and Siemens to manufacture the M&E Equipment. Lincas and Siemens are responsible for the design, manufacture, supply, installation, testing, and commissioning of the M&E Equipment. The Company also engaged Siemens as a contractor for maintaining the M&E Equipment. In respect of the MRT Blue Line Extension Project, Hua Lamphong - Bang Khae Section and Bang Sue - Tha Phra Section, the Company engaged CH. Karnchang Public Company Limited as Project Manager, with Siemens having the duty to supply rolling stocks, power supply equipment, signaling system, control, and communications system. Moreover, the Company engaged Siemens as a contractor for maintaining the M&E Equipment of the MRT Blue Line Project for the whole route.

The M.R.T. Chalong Ratchadham Line Project (MRT Purple Line), Bang Yai - Rat Burana, Bang Yai - Bang Sue Section, (Klong Bang Phai Station - Tao Poon Station)

The Company executed the Concession Agreement for the MRT Purple Line Project, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section, (Klong Bang Phai Station - Tao Poon Station), with MRTA, on a PPP Gross Cost basis, namely, the government sector

invests in all civil works and the Company invests in the M&E Systems and the rolling stocks. The government sector shall make repayment in installments to the Company for the costs of the M&E Systems after the delivery of the ownership. In this regard, the Company will provide the operation and maintenance services according to standards as specified in the Agreement. In addition, the government sector is entitled to all fare box revenue and commercial development revenue from the utilization of the civil infrastructure and the railway systems and the government sector shall make repayment to the Company in the form of service fee for the O&M Services, for a contractual period of 30 years, divided into two phases, namely, Works under Phase 1: Design, supply, installation, testing of the M&E Systems and other related systems, including trial run to ensure its readiness for public service until the commencement of the Operation Service, by means of engagement of CH. Karnchang Public Company Limited as Project Manager. As for the implementation of Works under Phase 1 of the Concession Agreement, the Company, and CH. Karnchang Public Company Limited engaged MTJV (Marubeni-Toshiba Joint Venture) for the supply of rolling stocks, power supply equipment, signaling system, control, and communications systems, as well as maintenance service.

9) Environmental Impact of Rail Business

In respect of the metro business, the Company is committed to continue its environment-related activities in accordance with ISO 14000 standards, by implementing pollution prevention and control measures, mitigation of environmental impact and sustainable use of resources on the basis of three aspects of sustainable development, namely, society, economy, and environment. In addition, the Company reported its operational results in line with the index on the operational results regarding energy conservation and environmental preservation in accordance with the Energy Conservation Promotion Act (No. 2) B.E. 2550 (2007), the ministerial regulations on standards, criteria and procedures for energy management in designated factories and buildings B.E. 2552 (2009), as well as the energy management manual for sustainable development.

Regarding the proportion of electricity utilization in the metro business, the energy-saving management measure was then taken in 2019, in order to reduce emissions of carbon dioxide (CO₂), the Company has adopted various measures, including public relations promotion measure, control measure, and technical change measure, namely, replacement of existing lamps with more efficient ones within MRT stations and Rama 9 Depot, etc. In 2019, a measure for use control and a measure for LED replacement for the existing lamps in Rama 9 Depot, and a control measure were implemented, as follows:

- Replacement of the existing lamps in Rama 9 Depot with LED lamps, thereby saving up to 65 percent of energy.
- There was a measure to control the switching on and off of the light system, the seasonal air conditioned system to ensure that electricity would be utilized seasonably and efficiently for the M.R.T. Chaloem Ratchamongkhon Line (MRT Blue Line) and the M.R.T. Chalong Ratchadham Line (MRT Purple Line). Also, this was provided greater convenience in services to the increasing MRT passengers.

Moreover, to alleviate the traffic problems, help preserve environment, and uplift the quality of people's life, the Company has further improved its operations in terms of management, as follows:

- Strictly complying with relevant legal provisions;
- Improving the train operations timetable to make it suitable for the increased number of the passengers;
- Making the public relations to support everyone's participation in energy saving;
- Controlling and improving risks or whatever which may be harmful to safety on the basis of risk assessment;
- In 2019, adding the number of trains for transporting the passengers with more efficiency according to the expanded route of the MRT Blue Line.
- Continuously reviewing the operating process in terms of policies, goals, action plans, and internal and external audits to ensure efficiency in the operating process.

Regarding the energy conservation and environmental preservation in the metro business, the Company has strictly complied with the government's relevant laws, such as, governing energy conservation and environment, and also adopted the Energy Management System

(ISO 50001) and the International Environmental Management System (ISO 14001) from the opening of the MRT service, as well as simultaneously organizing relevant activities, participating in and listening to related parties' opinions to ensure proper understanding which would lead to sustainable development. It was for this reason that the Company received the standard management certifications as follows:

- ISO 9001:2015 Quality Management System;
- ISO 14001:2015 Environmental Management System;
- OHSAS 18001:2007 and TIS 18001:2001 Occupational Health and Safety Management Systems;
- Safety Management System from Ricardo Rail Limited.

Moreover, in 2019, the Company carried out the continuous and systematic energy management to achieve efficiency in the metro system through energy management which was suitable for the business and to ensure the environmental preservation on a concrete basis in the pursuit of sustainable development. For this reason, the Company was presented with the Thailand Energy Award in the category of transportation, by the Department of Alternative Energy Development and Efficiency, Ministry of Energy, showcasing its outstanding performance and playing a part in supporting the energy saving at the national level and serving as a role model for various organizations, as well as actively encouraging all relevant personnel's participation.

In addition, the Company has been paying attention to the potential environmental impact from the MRT services on the environment, quality of life, and lives of people and nearby communities, by strictly monitoring, preventing and mitigating the environmental impact, in accordance with the Environmental Impact Mitigation Measures and Monitoring Program-EMP, during the implementation of the MRT projects in service, namely, the M.R.T. Chaloem Ratchamongkhon Line Project and the M.R.T. Chalong Ratchadham Line Project, as well as submitting reports on its compliance with such measures to the Office of Natural Resources and Environmental Policy and Planning (ONEP) to monitor and follow up the environmental quality in key environmental issues as follows:

(1) Air Quality

The results of air quality measurement in the atmosphere around the projects showed that the total suspended particulate (TSP), particulate matter (PM10) and carbon monoxide (CO), nitrogen dioxide (NO₂), and the total hydrocarbons (THC) did not exceed normal level.

(2) Air Quality in MRT Stations and Trains

The results of air quality measurement in the MRT stations and trains, during both peak and off-peak hours, showed that the total bacterial and fungal volume, ventilation rate, temperature, and relative humidity did not exceed normal level.

(3) General Noise Level

The results of general noise level measurement showed that the average noise did not exceed 70 dB(A), with the maximum level not exceeding 115 dB(A), which met the standard requirements.

(4) Vibration Level

The results of vibration level measurement did not exceed normal levels.

(5) Effluent Quality

The results of effluent quality measurement in stations, depot and administration building did not exceed normal levels. The wastewater treatment system could work efficiently according to its design.

(6) Waste Management

The results of waste management were found that segregation, collection and transport of waste for disposal were made efficiently in accordance with the management plan and applicable laws.

In addition to the environmental quality measurements, maintenance vehicles used in the depot area meet the EURO IV Standard, an emission standard for vehicles, which provides assurance that the use of such maintenance vehicles and the maintenance operations will in no way give rise to pollution at a hazardous level.

2.1.3 Commercial Development Business

The Company has carried out commercial development in relation to the expressway system by allowing the private entities and individuals to use the space for commercial operations in the vicinity of the expressway system for installing Intelligent Traffic Signs and advertising boards in various forms and for installing shops in the areas of toll plazas and engaging in other business, such as, use of the areas in the expressway system for installing 3G signal boosters, etc. In respect of commercial development of the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line), the Company also has operated and appointed its subsidiary, namely, Bangkok Metro Networks Limited (“BMN”), as the management representative in the commercial development of such MRT project, per the following details:

1) Nature of Services

- **Commercial Development Relating to Expressway System**

As for the commercial development in the area of the expressway system, the Company and one of its subsidiaries, namely, NECL, allowed private entities and individuals to take on the lease of spaces for commercial operation, as follows:

- Installation of Intelligent Traffic Signs and Advertising Boards

Private entities were allowed to install Intelligent Traffic Signs on the main routes and in front of toll plazas, and install advertising boards in various areas, such as, in front of toll plazas, toll booths, expressway columns, and expressway barriers, etc.

- Retail Areas around Toll Plazas

Private entities and individuals were allowed to take on the lease of retail areas for providing service to expressway service users around Prachachuen, Srinagarindra, and Bang Pa-in Toll Plazas.

- Other Business Operations

Private entities were allowed to use the expressway areas for installation of 3G signal boosters, etc.

- **Commercial Development Relating to Metro System**

The Company has appointed its subsidiary, namely, BMN, as the sole management representative in the commercial development of the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line), per the following details:

- Procurement and/or Production of Advertising Boards

- BMN, as the Company’s representative, has developed a variety of advertising media in terms of format, creative thinking, use of various innovations to make sure that the advertising media attract interest, create value added to advertisers’ products, enhance images of products and services, and build up recognition among consumers. As for the Modern Customer Journey which would evolve to the point of making a decision to buy a product and service (Individual Decision), the product owners must then create brand awareness as much as possible (Brand Awareness) through many different channels in this modern era. The selection of channels to create brand awareness depends on many factors, for instance, target group, convenient and rapid access, worthiness, attractiveness, etc. Therefore, the Company’s guidelines for development of advertising media have been given priority to media format development to ensure brand awareness attractive to the MRT service users and to maximize the use of customers’ budgets. Other than the development of advertising media, creation of value added to the Prime Areas would be also made, including creation of new environment in the existing areas to make them have high value, e.g., integrated use of air ventilations of the MRT stations together with passenger elevators or space on the roofs (Integrated Media) to enable such areas to create value for the Company.

○ **Lease of Retail Areas in MRT Stations**

Nowadays, the behavior of traveling by the MRT system is increasing every year. The Company has recognized and placed importance on the development of retail space in the stations by developing the areas to be more beautiful, selecting the tenants with commitment to responding to the travelling behavior of the service users. Other than the commitment to response to the travelling behavior, the Company has also realized that the MRT system is an important part of travelling in Bangkok, therefore, the area development model does not only focus on selection of shops, but also includes the design which make the service users accessible and feel convenient, safe, comfortable, or choose as a meeting place or rest area for travelling.

○ **Provision of Service and Maintenance of Telecommunications System Equipment**

In 2019, the Company additionally installed the telecommunications system equipment at another four underground stations, namely, Wat Mangkon Station, Sam Yot Station, Sanam Chai Station, and Itsaraphap Station, thereby rendering the total service stations in the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line) to 22 stations. In this regard, the Company boosted the efficiency in the signal receiving, distribution and transmission to become faster, as a consequence of the rapid change in technology.

2) Marketing and Competition of Commercial Development Business

• **Customer Characteristics and Target Customers**

As a result of a variety of commercial services in the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line), different groups of customers or target customers vary according to service types, however, our top priority is ended customers or the MRT service users, therefore, customer characteristics and target customers for commercial development can be classified, as follows:

○ **Procurement and/or Production of Advertising Media of Various Forms**

The rapid change in technology leads to change in consumer behavior. That is, consumers can have a quick access to information and highly rely on information in making decisions. In the selection of advertising media to create brand awareness, there are two main channels, i.e., use of service via agencies and purchase of advertising media from brand owners, depending on many different factors, for instance, objectives of the brand owners, requirement for other additional services, benefits and worthiness, relationship, etc. As for the advertising media customer groups in the MRT system, it results from purchase of advertising media via both channels. Currently, the percentage of advertising media purchase via agencies is higher than that from the brand owners. However, the percentage of the brand owner customers increased from 40 percent to 45 percent in 2019.

The top five groups of goods and services using the MRT advertising media are comprised of group of communications equipment (mobile phone), followed by groups of food and beverage, financial institutions, entertainment business and health and beauty business.

○ **Lease of Retail Areas in MRT Stations**

Currently, the retail spaces in the MRT stations are popularly attractive to well-known brands which are more famous, as a result of rapid change in the growth rate of passengers and consumer behavior, together with needs for convenience, rapidity, easy access to services, brand owners have then improved service formats to be in line with behavior of the MRT service users.

○ **Provision of Service and Maintenance of Telecommunications System Equipment**

The Company's customer groups are those who have obtained licenses to operate the telecommunications business from the Office of the National Broadcasting and Telecommunications Commission (the Office of the NBTC) to provide mobile phone services, both public and private sectors, comprising AIS, DTAC, TRUE MOVE, TOT, and CAT, each of which would hold the license to provide the service under the frequency category. The frequency services provided in the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line) include 850, 900, 1800, 2100, and 2300 MHz.

3) **Marketing Policy and Strategies of Commercial Development Business**

• **Service and Product Strategies of Commercial Development Business**

Commercial Development Relating to Expressway System

- Intelligent Traffic Signs in the form of maps and text messages are provided to give traffic updates to expressway users, including advertising boards in front of toll plazas, barriers, expressway columns, and in front of toll booths.
- Shops and public restrooms are provided to expressway users in 4 toll plazas of the Si Rat Expressway and the Udon Rathaya Expressway, namely, Srinagarindra Toll Plaza, Prachachuen Toll Plaza (inbound), Bang Pa-in Toll Plaza (inbound), and Bang Pa-in Toll Plaza (outbound).

Commercial Development Relating to Metro System

As a consequence of the rapid changes in society and technology by entering the era which technology plays a key role in everything, resulting in the change in consumer behavior, including the MRT service users, therefore, various commercial services in the MRT system have to be developed, improved and changed to be in line with the aforesaid changes accordingly, as follows:

- In 2019, the Company modernized the advertising media by using digital media in lieu of static media in the prime areas and replaced sticker media in certain areas with Special Light Box to create value added and enhance the image (Lift Image) for the brand owners, which built trust and reliability in the Company in a manner which the Company played a part in taking care of brand value of its customers, thereby resulting in the long-term customer relations management. Moreover, an addition of creative and innovative thinking enabled the MRT advertising media to raise awareness and reminder due to its format which could distinguish from other general media. This was a strategic key to differentiate itself from competitors in the market.
- In development of retail areas, strategies to organize various activities in the areas of the Company's partners have been adopted, including activities useful to the service users, for example, book fair, artwork event, etc. Moreover, marketing communication was made via social media of various types or creative clip videos were produced to make the areas publicly known and to create the image of the retail areas in the MRT stations to be a part of daily journeys of Bangkok residents.
- The rapid change in technology aroused the expectation and requirement of high efficiency in mobile phone service from service providers and service receivers. In 2019, the Company expanded the service areas to the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line), Hua Lamphong - Bang Khae Section and Bang Sue - Tha Phra Section (underground stations), to fulfill their expectation and requirement of the efficient services. Furthermore, the Company drew up a plan to increase efficiency in the services to 18 stations which have been available in service to ensure that the services meet the same standard.

In addition to provision of the commercial services as mentioned above, provision of the event marketing service in the forms of public relations and sale of goods and services became highly popular since it did not require a high budget, and could specify the short-term use of the area, whereby the Company has designated the service areas in all MRT stations.

• **Corporate Image Promotion Strategies**

- Giving back to the society, support of the government policies are regarded as an important mission which has been realized and prioritized by the Company through, such as, organizing activities to broaden knowledge of the youths, activities for reading promotion, provision of support to the government sector in public relations about its services, etc.

- **Distribution Strategies and Channels of Commercial Development Business**

- The commercial services in the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line) have varied according to the service types, distribution channels are then differentiated by the service types.
 - Public relations media have sale channels via business alliances as agencies together with direct presentation to the brand owners.
 - Spaces for lease and service and telecommunications service are presentation of the spaces direct to the brand owners.

4) **Industrial Outlook and Competition of Business Development Business**

- **Advertising Media**

The economic slowdown both at home and abroad was resulted from various factors in terms of economy, politics, natural disasters, budgets for advertising media must be therefore utilized carefully. As a result, the overall economy in 2019, when compared to that in the previous year, slightly grew by approximately 0.28 percent, whereby traditional media, namely, television, newspaper, and magazine, had the lower growth rate; however, the out of home media had the higher growth rate, due to the consumer behavior of more outdoor living. The media which had the highest growth rate included cinema, followed by transit media and outdoor media, respectively. That was, the growth rate of the transit media represented 5.87 percent resulting from more outdoor living, particularly during commuting time. For this reason, brand owners used an increase in budget to create brand awareness via this channel. Currently, the growth rate of the passengers using the mass rapid transit system was constantly high, including passengers of the MRT system, which has presently expanded its service to the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line), Hua Lamphong - Bang Khae Section and Bang Sue - Tha Phra Section, with greater service expansion from the suburban areas into the urban areas. Therefore, it was expected that in 2020, the number of service uses would be continuously high, which would have a positive effect on the business operations in the field of advertising media service.

- **Spaces for Lease and Service**

Despite the fact that technology nowadays plays a more key role in influencing consumer behavior in spending, together with goods service expansion to provide more rapid and convenient services to consumers, for instance, various kinds of delivery services which have been expanded rapidly.

Demand for spaces for provision of goods and services still continues to be high, evidenced by development of various projects (supply) as opened for service this year, and future projects, especially spaces of the projects surrounding the MRT routes, due to the conveniently accessible location. In this regard, the large project spaces mostly incur high rate of rental and service fees, brand owners then made an effort to look for new platforms to be easily reachable to consumers, but with incurring rental and service fee rates which allow the sustainable business operations in the long run and which would become potential spaces in the future. Hence, the retail shops in the MRT stations are more extremely attractive to renowned brand owners and SMEs because they are situated in the potential location. Also, a group of service users would be likely to grow every year, resulting from behavior of more frequently travelling by the mass rapid transit system and the expansion of the electric train routes to ensure connectivity of travelling with greater convenience and rapidity.

5) **Procurement of Products and Services of Business Development Business**

- **Nature of Procurement of Products**

The Company has obtained the concession from the Mass Rapid Transit Authority of Thailand (MRTA) for operation and commercial development in the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line), with the Company conducting commercial development in respect of 1) procurement and/or production of advertising media of various forms; 2) lease of retail areas in the MRT stations; 3) provision of service and maintenance of telecommunications system equipment; and 4) other commercial activities, by authorizing Bangkok Metro Networks Limited as the Company's representative to conduct the commercial development.

With respect to the expressways, the Company and one of its subsidiaries (NECL) allowed private entities and individuals to take on lease of expressway areas for installation of Intelligent Traffic Signs and various advertising boards, including retail areas around toll plazas, and other business activities, such as, the use of the expressway areas for installation of 3G signal boosters, etc.

6) Environmental Impact of Commercial Development Business

The Company also cares for and takes into account the environmental impact on the retail shop floors in the MRT system in order to prevent any impact on the environment, quality of life, and livelihood of people and communities, per details in Item 9: Environmental Impact of Rail Business.

2.2 Work Pending Delivery - None -

3. Risk Factors

The Company realizes the significance of the management of risks from business operations under the changes of internal and external factors affecting its operational results. Risk management is considered a key instrument for business administration to ensure efficient and effective achievements and promote its competitiveness, as well as a key factor of the Good Governance. The Company thus arranges for the systematic risk management, monitoring, and measures to minimize risks continuously. The Board of Directors has appointed the Corporate Governance and Risk Management Committee for policy-level consideration on the adequacy and appropriateness, with the Management to supervise the overall risk management process of the organization and perform daily routine work on behalf of the Corporate Governance and Risk Management Committee to monitor, evaluate and prepare a report on risk management to the Board of Directors for information.

In addition, the Company has also prepared an annual risk management plan, a risk management handbook as guidelines in the operations, and regularly monitors, evaluates, reviews risks every quarter to be in line with the ever-changing internal and external circumstances, including a backup plan in case of emergency, in order to ensure prompt action in solving problems and coordination with relevant units at all times. The risk management policy of the Company is as follows:

1. To adopt a risk management process in accordance with international standards or practices to ensure the efficiency of risk management, implementation and development in the same direction on an enterprise level in line with the business operation policy of the Company.
2. To treat the risk management as part of work, significant decision-making regarding management, and strategic plan to achieve the specified objectives, goals, missions and vision of the Company.
3. To carry out proactive risk management to manage risks which may result in the Company's loss of interests and opportunities.
4. To delegate risk management as the staff's responsibility at all levels and manage risks within their work units and the organization to contain risks at an adequate and appropriate level.
5. To determine guidelines for prevention or reduction of risks at a level acceptable to the Company in order to formulate plans to manage and control risks in an acceptable level. All work units must consider the justification of expenses or costs to implement risk management measures in comparison with expected benefits.
6. To efficiently communicate the risk management within the Company for staff's effective learning, development, and compliance.
7. To prepare an annual risk management plan subject to consideration and approval of the Corporate Governance and Risk Management Committee in respect of sufficiency and appropriateness to the current business circumstances.
8. To regularly follow up and assess the results of risk management to make sure that risk management is duly and properly conducted.

Risk factors which may materially affect the Company's business operations are as follows:

3.1 Systematic Risk

3.1.1 Risk from Business Operations under Agreements with Government Sector and Government Policy

The Company operates its businesses under the relevant Concession Agreements subject to the supervision of the government agencies, differences in the contractual parties' interpretations in terms and conditions of the Concession Agreement may arise in various matters, such as, revisions of toll or MRT fare rates, consideration to extend the concession periods under the Concession Agreements and responsibility for costs under the Agreements, which may require a certain period of time to come to a solution, and may impact the Company's business operations.

Moreover, the political uncertainty and changes in government administration from the political party in charge may result in changes in policies, relevant laws or regulations, that possibly affect consideration to extend the concession periods under the Concession Agreements or terms and conditions stated, thereby rendering EXAT or MRTA unable to perform its obligations under the relevant Agreements or may require the Company to proceed beyond those specified in the relevant Agreements or undertakings.

The Company's core revenue is partial from the expressway business under the Second Stage Expressway Agreement, together with its concession terms of 30 years ending in February 2020. Despite the conditions of the Agreement specifying that prior to the termination of the contract term of 30 years, the Agreement may be renewed twice of 10 years each, subject to the conditions to be agreed upon between EXAT and the Company.

The Company submitted a request for renewal of the Second Stage Expressway Agreement to EXAT in 2015.

Subsequently, in September 2018, the Supreme Administrative Court rendered the judgment requiring EXAT to compensate NECL for the impact from the competing road. The Council of Ministers' Meeting resolved on October 2, 2018 to acknowledge the report on the judgment of the Supreme Administrative Court, whereby the Council of Ministers was of the opinion that to mitigate the loss and damage which would occur to the state and to protect the utmost benefits of the government sector, such government agency may enter into negotiation with the disputing parties to mitigate the damage of the state. To ensure the justice for the people, provided that such negotiation shall be conducted transparently and legitimately by mainly taking into account the benefits of the nation.

EXAT negotiated with the Company and NECL to solve the disputes of the Second Stage Expressway Project (the Si Rat Expressway, including Sector D) and the Bang Pa-in - Pak Kret Expressway Project (the Udon Rattaya Expressway) until the settlement could be reached, and complied with the process in Section 47 of the Private Investment in State Undertakings Act B.E. 2556 (2013). The agreement for settlement of the disputes has already been approved by EXAT's Board of Directors and the Supervisory Committee for the Second Stage Expressway Project and the Supervisory Committee for the Bang Pa-in - Pak Kret Expressway Project. Furthermore, the Office of the Attorney General already completed review and consideration of the draft Second Stage Expressway Agreement (Amendment) and the draft Bang Pa-in - Pak Kret Expressway Agreement (Amendment), without raising any objection to the amendment of the draft agreements as submitted by EXAT for its review and consideration.

On February 18, 2020, the Council of Ministers' Meeting has resolved to approve the amendment of the Agreements to settle the disputes of the Second Stage Expressway Project (the Si Rat Expressway, including Sector D) and the Bang Pa-in - Pak Kret Expressway Project. In this regard, the Company and EXAT have already signed the Second Stage Expressway Agreement (Amendment) while NECL and EXAT have already signed the Bang Pa-in - Pak Kret Expressway Agreement (Amendment) on February 20, 2020.

In addition, the Company has established a joint operating system with the government agencies both the administrative and operation levels, by sharing sufficient information to ensure good understanding towards each other, as well as closely and regularly monitoring the political situations and changes in policies, and reasonably reviewing the strategies and operational plans to be suitable for the situations and their mutual interest in the long run.

3.1.2 Risk Relating to Revenues less than Projections

The Company provides both expressway and metro services, therefore, the Company's core revenues are tolls and fares, which may be affected by several external factors beyond the Company's control, such as metro network expansion, improved feeder systems, fare rates of other available alternative transit systems, road traffic congestion, oil prices, and growth of real estate and condominium projects as well as other businesses surrounding the metro routes, which would serve as people's destinations, etc., all of which will affect the volume of service users. Moreover, the Company generates commercial development revenue, which may vary depending on the local and overseas economic conditions, competition in advertising media and retail space lease business, as well as the progress in opening of retail shops in the stations, several factors of which are beyond the Company's control. Therefore, should the Company's revenues differ from study results or projections, it may affect the liquidity and serviceability management with respect to the existing obligations owed to the lending financial institutions or creditors according to the mutually agreed schedule, such as, interest expenses, scheduled repayment of loans, operating expenses under the Agreements, as well as remuneration payable to MRTA, etc.

To minimize such risk, the Company has established a unit to closely monitor any impact which may affect various factors and formulated appropriate strategies. In addition, the Company can limit potential impacts from risk factors, such as oil prices, road traffic congestions, and fare rates of other available alternative transit systems, due to the Company's full services of expressways and metro, both of which are considered substitute products. With respect to the commercial development, the Company will develop new advertisement media to increase its commercial development revenue, such as advertisement media management via the Passenger Information Display System (PIDs), platform billboard, and digital media, including development of more retail space.

3.1.3 Risk from Interest Rate and Foreign Exchange Rate Fluctuations

Given that the Company remains obliged to service interest-bearing liabilities to lenders, and the Company plans for future investment in many projects, therefore, it may require a large amount of long-term loans. Thus, interest expenses are considered the significant expenditures for the Company. The increased interest rates on loans may affect the Company's operational results due to the floating interest cost in respect of the certain credit facility, thereby putting the Company at risk by bearing an increase in expenses from interest rate fluctuation or increase in the money market. However, the Company has managed such risk from interest rate fluctuation, by arranging for the loan structure, divided into loans at floating interest rates and loans at fixed interest rates including plans to issue debt instruments or debentures as suitable to the economic conditions and the Company's view of the future interest rates.

In 2019, the Company issued and offered for sale debentures in the total amount of Baht 5,000 Million in replacement of the matured existing debentures, at the fixed interest rate, to reduce the risk from interest rate fluctuation which may increase in the future.

Moreover, the Company entered into a conversion contract for partial floating interest rates to fixed interest rates during the period which the interest rates in market had gradually declined, in order to reduce the potential risk from interest rate fluctuation in the future. However, the Company still maintained a partial loan bearing the floating interest rate to ensure consistency with the presently economic condition which has not yet given a signal of an increase in interest rate, thereby resulting in a decrease in financial cost. In this regard, the floating interest rate would be converted into fixed interest rate to minimize the risk in the future in due course.

In addition, the Company incurred expenses in foreign currencies, for example, the maintenance cost of the M&E Equipment, and insurance premiums, part of which had to be paid in foreign currencies. Thus, should the Baht value depreciate, the Company's expenses will increase accordingly. However, the proportion of its expenses in foreign currencies is low. The Company will still consider reducing risk from the exchange rate, such as negotiations for reduction of foreign currency expenses and buying forward, etc.

3.1.4 Risk from Serious Accidents, Public Unrest, or Natural Perils

The Company's businesses of both construction and management of the expressways and metro are exposed to an event or external factor which results in an emergency, for example, perils, serious accident, earthquake and such events which may be caused by terrorism, sabotage as bombing, riot, including gathering of insurgent groups, which may force the Company to suspend its services, thereby giving rise to loss of revenue, damaging assets, tarnishing image and destroying reliability of the Company. For this reason, the Company has set forth emergency plans in response to any such events which may suddenly occur, for example, removing various significant and essential M&E equipment for management of the expressways for storage at the safe place, as well as arranging for staff training to ensure that the staff in charge will be able to take prompt actions to resolve such emergency, for instance, practicing emergency drills of all relevant units inside and outside the Company by the way of simulation of such various situations as emergency in the metro stations from bomb threat and bomb blast in the metro stations, train breakdown and stop inside the tunnel, fire in the rolling stock, metro stations or tunnel, etc., as well as establishes a unit for monitoring, alerting and coordinating with relevant agencies to prevent the occurrence of any serious accident and to be ready for rescue operations; installation of metal detectors, CCTVs, and provision of security staff in all areas.

The Company has taken out insurance against property all risks, business interruption, public liability, and terrorism in respect to the metro service business.

3.1.5 Risk in respect of Personnel

As the government realizes the significance for solving problems on traveling and traffic in Bangkok by using the mass rapid transit system, it thus expedited the expansion of the metro network and the connecting system to other transportation systems. Therefore, it would be highly possible that there would be governmental organizations or private agencies operating the mass rapid transit system business which require additional personnel with knowledge, expertise, and skills in the technical field in the rail business. As a result, it would be likely that the Company's main personnel would be enticed away from the Company.

The risk from a shortage of competent personnel is considered as one of the Company's main risks, as they are a key factor to drive our organization to success. The Company gives priority to the personnel risk management, starting from the nomination and selection of good and qualified personnel suitable for the Company; continuous staff training courses to improve knowledge, skills, and abilities in various fields necessary for the performance of work based on each staff's position and designated duties; encouragement of the staff morale; consideration of appropriate and fair remuneration and welfare; organizing outing activities to encourage staff to love, unite, feel connected with the organization; review and revisions of the operation process and work system to ensure readiness at all times, as well as preparation of the succession plan, whereby the Company has prepared the succession plan and appointment of a working group comprising high-level executives to set up guidelines in the selection of staff to ensure the availability of personnel, both in the executive and supervisor levels, in order to prevent the risk from a shortage of personnel having knowledge, expertise and technical skills for specific work. The Company has arranged for collection of the body of knowledge for specific work and extended the results to the knowledge management program, in order to continuously improve the work process.

3.1.6 Risk in respect of Information Technology Security

With the Company's commitment to providing the services of the expressway system and the mass rapid transit system with safety, convenience, rapidity, reliability, punctuality and efficiency, the Company then needs to employ the cutting-edge technology to support its operations, including the provision of the services with the highest efficiency in a constant manner, which there may be a risk from disruption of main work systems, such as the collection control system, traffic control system, electricity system, and equipment (electrical power system, signaling system, communications system, SCADA system, platform screen door system, automatic fare collection system, signage system) and the Company's internal computer system (Back Office). If there is an attempt to have unauthorized or unapproved access to the information technology system of the Company, from both internal and external persons, including computer virus attacks, there is a risk which the fare collection system may break down; the fare management system may be disrupted and out of service.

The Company sets up an emergency plan to deal with possible incidents which may have an impact on system equipment, comprising preventive and corrective plans for system equipment, on a regular basis, for prevention and arranging for staff in charge to ensure their access to tackling problems immediately in case of emergency in the work systems; there is a process of replaceable cards management in the case where the fare management system is not able to record entry-exit to and from the gates. The system is designed to enable all fare collection equipment to collect information in a stand-alone manner in the case where the server is not able to collect information on traveling of passengers. Manuals are prepared to specify procedures and methods for the safety of the information technology system. Furthermore, the Company formulates the policy to improve the toll collection system at the control center level in accordance with the ISO/IEC 27001:2013 Information Security Management System standard in order to provide a higher degree of security to the information technology of the toll collection system at the control center level, and also defines a standard for critical information management to ensure the business continuity, enhancement of the trust in the organization on the global stage. The Company has obtained certification of the ISO/IEC 27001:2013 standard for development of the process and Information Security Management System (ISMS) in accordance with the ISO/IEC 27001:2013 international standard for the toll collection systems at the Si Rat Expressway Control Center (CCB 2) and the Si Rat - Outer Ring Road Expressway Control Center (CCB7), as well as developing personnel in the field of information technology security management to enable them to perform works under the work process / system so developed, including following up news on cyber threats for taking precautions and making preparedness to handle at all times.

3.2 Corporate Specific Risk

3.2.1 Risk from Legal Disputes

The Company and NECL had a total of 19 disputes with EXAT on a different interpretation of several matters, such as adjustment of toll rates and responsibility for costs under the Agreements. The disputes were referred to the Arbitral Tribunal in accordance with the dispute settlement procedures under the Agreements and in the Administrative Court.

On February 18, 2020, the Council of Ministers' Meeting has resolved to approve the amendment of the Agreements to settle the disputes of the Second Stage Expressway Project (the Si Rat Expressway, including Sector D) and the Bang Pa-in - Pak Kret Expressway Project. In this regard, the Company and EXAT have already signed the Second Stage Expressway Agreement (Amendment) while NECL and EXAT have already signed the Bang Pa-in - Pak Kret Expressway Agreement (Amendment) on February 20, 2020.

3.2.2 Risk from Return on Investments in Companies less than Projections

The Company may be exposed to a risk from return on investments in companies less than projections in the event that the operational results of such companies whose shares were held by the Company do not meet the projections. To minimize such risk, the Company will take into account the proportion of investments in companies in line with the Company's investment policy whereby those investments can be converted into cash when there are appropriate business opportunities and occasions.

In 2019, the Company sold 32.9 million shares in TTW Public Company Limited in the amount of Baht 399 Million, as a result, its shareholding percentage therein decreased from 19.29 percent to 18.47 percent, and also reclassified investments from investments in associates recognizing share of profit or loss according to the shareholding percentage to other long-term investments in available-for-sale securities, which a change in market capitalization would be recorded on the end date of the accounting period. The price difference is treated as unrealized gain or loss indicated in the shareholders' equity.

In this regard, the decrease in the shareholding percentage to be the investment in the available-for-sale securities shall be deemed to minimize a risk from return on investments in companies less than projections in the event that such company's operational results fail to meet the projections. However, the Company sent its representatives to be members of the board of directors of the companies invested by the Company to ensure the Company's participation in their management and acknowledge the operational results of the companies invested by the Company on a regular basis.

3.2.3 Risk Relating to Fluctuation of Cost of Rail Business

Costs of rail business comprise the cost of farebox and cost of train service, which are deemed the main expenditure of the Company's business operations, comprising repairs and maintenance costs for the metro and civil infrastructure, public utility cost, personnel cost, and payment of remuneration from fare revenue.

As for the maintenance costs under the M&E contract, the Company's contract is in foreign and Baht currencies, subject to adjustment based on the Consumer Price Index as specified in the contract. Given the long-term contract, the Company will be then exposed to risk due to changes in such indices.

The public utility cost mainly comprises the cost of electricity used at the metro stations and for train operations. The cost of electricity may be adjusted according to the electricity rates of the Metropolitan Electricity Authority, which may result in the Company's increased cost.

Therefore, the Company's costs of rail business in respect of the cost of farebox vary according to the aforesaid costs. However, in the past, the Company remained able to effectively control its cost of farebox. Besides, the cost of farebox is mostly fixed cost, not varying directly according to the increased volume of passengers, provided that there is no material change in the volume of passengers to the extent that the Company is required to add the number of trains for service to enhance the capacity to accommodate the passengers.

In the Concession Agreement for the MRT Blue Line Project, the service fees for the O&M Services payable by MRTA to the Company are calculated and based on the projections of operating expenses estimated by the Company, whereby such service fees may be adjusted only based on the actual inflation rate and electricity charge rate under the method specified in the Concession Agreement. Therefore, profits from the Operation Service will vary

according to the Company's ability to manage the actual costs and expenses to mirror the specified projections. Should the actual costs and expenses be different from the projections, the Company's operational results may be affected since the Company is not able to request compensation or increase the service fees from MRTA.

However, with the expertise and experience in the management of the MRT Blue Line Project, the Company is confident in its ability to efficiently manage costs and expenses for operations to be close to the projections.

3.2.4 Risk from Engagement of Outsourced Experts as Main Contractors for Supply and Maintenance of the M&E Equipment

The Company has accepted the transfer of the agreement for the procurement of the M&E Equipment and an agreement for maintenance of the M&E Equipment with main contractors, namely, Siemens Limited, Thailand, and Japan Transportation Technology (Thailand). Thus, in the event that such outsourced expert group, as such main contractors, is unable to provide services under the agreements to the Company or there is any change in the maintenance agreement, the Company's business operation may be affected and in the event that the trains cannot be opened for service, the Company's image may be affected.

In this regard, the Company has managed the risk by study information from the members of the international federations of public transport operators, e.g., UITP, APTA, NOVA Group of Metros, including the advice from Lloyd's Register Rail, the highly experienced consultant, it is then possible for the Company to select and procure other manufacturers' M&E Equipment which is compatible with its existing system. The Company also formulates the strategic plan in developing the quality of its personnel to ensure they have sufficient capabilities for working with local and overseas equipment manufacturers and contractors in the maintenance and repair of the M&E Equipment and the rail system to ensure efficiency without reliance on the sole existing manufacturer.

3.2.5 Risk from Work Operations of Expressway Construction and Management Business

The Company takes into account the risk from operations of expressway construction and management business which may be resulted from primary factors, i.e., personnel, work system, operation system and external factors, which cause error or insufficiency of work procedures, employees, work system or information technology system, including employees' fraud and events or external factors, which may give rise to monetary and non-monetary damage, namely, damage to reputation or security of the Company. Therefore, it is greatly necessary to have a thorough supervision system with due care. The Company has then arranged for a specific unit having duties to monitor and maintain the routes and toll collection system in accordance with the operation standards, which can be assured by the experience and expertise of staffs in charge from all divisions, thereby leading to the quality and availability of efficient, complete and continued service.

In addition, the Company has also established the preventive measure for the significant structures of the expressway systems so as to be available for full-time service by way of drawing up a plan for inspection of the structures of the Si Rat Expressway, the Udon Rathaya Expressway, and the Si Rat - Outer Ring Road Expressway to be in line with the inspection by JMI Pacific Co., Ltd., a designing company with expertise in structural inspection. The monitoring, surveillance, and maintenance were conducted to ensure that there would be no impact on the use of the expressways. As for to the toll collection, communication and traffic control systems, which are important to its operations, the Company has provided the preventive maintenance as well as the data backup system, the power backup system and the management of purchase of spare materials.

Moreover, the Company may be exposed to the risk from non-functional toll collection equipment which may arise from various causes, such as, inoperative electrical system due to a power failure on the part of the Metropolitan Electricity Authority, error processing by the operating system, etc. In this regard, the Company gives high priority to such risk management by arranging for power backup system, a security system for prevention of access to significant work systems by any third parties, determination of authorization levels of access to information and equipment, and installation of virus scan software and data backup in the operating system to ensure instant substitution.

3.2.6 Risk from Delayed Construction and Operation of the Projects

The Company executed the Concession Agreement for the MRT Blue Line Extension Project with the Mass Rapid Transit Authority of Thailand (MRTA) on March 31, 2017, whereby the Company shall have duties in supply, installation, and test run and commissioning of the M&E Systems for the MRT Blue Line Extension Project, provided that such M&E Systems shall be connected with those of the M.R.T. Chaloem Ratchamongkhon Line Project in order to provide the train operation service in phases as planned. The Company managed such risk by entering into an agreement engaging CH. Karnchang Public Company Limited as Project Manager, as well as for supply, installation, and test run and commissioning of the M&E Systems for the Project. At present, there remained the risk from the operation of Phases 2 and 3 of the Project. Nevertheless, the overall progress of the MRT Blue Line Extension Project was currently as planned, with three phases specified as follows:

- Phase 1: Bang Sue Station - Tao Poon Station, under the Agreement scheduled for service opening by August 15, 2017, was already opened for service on August 11, 2017;
- Phase 2: Hua Lamphong Station - Lak Song Station, under the Agreement scheduled for service opening within 30 months, was already opened for service on September 29, 2019; and
- Phase 3: Tao Poon Station - Tha Phra Station, scheduled for service opening within 36 months (in March 2020), was opened for a trial run in December 2019, with the official service opening expected to take place in March 2020.

4. Property Used in Business Operations

4.1 Main Assets

As of December 31, 2019, the Company and its subsidiaries had main assets used in business operations, as follows:

(Unit: Million Baht)

Class of Assets	Net Book Value
1. Building and equipment	311
2. Rights to operate completed expressway sectors	32,253
3. Rights to use sites for expressway construction	62
4. Intangible assets under the Concession Agreement for the MRT Blue Line Project	42,339
Total	74,965

The main assets of the Company and its subsidiaries as indicated above can be classified into class of assets and companies, as follows:

4.1.1 Building and Equipment

As of December 31, 2019, the book value of the building and equipment as per the consolidated financial statements of the Company and its subsidiaries was as follows:

(Unit: Million Baht)

Company	Net Book Value	Ownership	Encumbrance
The Company	269	Owner*	None
NECL	17	Owner**	None
BMN	25	Owner	None
Total	311		

Remarks: * This refers to the building, construction improvement, and certain structures of the Second Stage Expressway System. Despite the fact that the title to such building is owned by EXAT, the Company is granted the right to use such building to operate the Second Stage Expressway Project under the conditions as specified in the Agreement. The Company takes on the lease of a building for use as its head office located at No. 587 Sutthisarn Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok 10400, at the rental rate of Baht 10,000 per month.

** NECL does not own any property, plant, and equipment but takes on the lease of a building for use as its head office located at No. 587 Sutthisarn Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok 10400, at the rental rate of Baht 10,000 per month. NECL uses the Bang Pa-in - Pak Kret Expressway Control Center Building, which is part of the Bang Pa-in - Pak Kret Expressway Project, to supervise the operations. Despite the fact that the title to such building is owned by EXAT, NECL is granted the right to use such building to operate the Bang Pa-in - Pak Kret Expressway Project under the conditions as specified in the Agreement.

4.1.2 Rights to Operate Completed Expressway Sectors

As of December 31, 2019, the book value of the rights to operate completed expressway sectors as per the consolidated financial statements of the Company and its subsidiary was as follows:

(Unit: Million Baht)

Company	Net Book Value
The Company	27,249
NECL	5,004
Total	32,253

The rights to operate completed expressway sectors are considered the costs of construction of the Si Rat Expressway, the Si Rat - Outer Ring Road Expressway, and the Udon Ratthaya Expressway, with the details as of December 31, 2019, comprising:

(Unit: Million Baht)

Class of Assets	Net Book Value	Ownership	Encumbrance
Si Rat Expressway (Sectors A, B and C)	400	EXAT	None
Si Rat Expressway (Sector D)	2,960	EXAT	None
Si Rat - Outer Ring Road Expressway	23,456	EXAT	None
Udon Ratthaya Expressway	5,000	EXAT	None
Project costs during construction	437	EXAT	None
Total Net Book Value	32,253		

Given that the Expressway Agreements above are on a BTO (Build, Transfer and Operate) basis, the title to all expressways, including various permanent constructions in relation to or used in connection with the expressway systems, shall be vested in EXAT immediately upon construction by the Company and NECL. Upon opening for service, the Company and NECL are entitled to utilize such property and shall have the duty to keep such property maintained throughout the terms and conditions of the Agreements. The Second Stage Expressway Agreement (Si Rat Expressway) has a term of 30 years from March 1, 1990, and may be renewed twice of 10 years each, subject to the conditions to be further agreed upon. The Agreement for the Extension of the Second Stage Expressway System (Sector D) has a term of 30 years from April 22, 1997. The Si Rat - Outer Ring Road Expressway has a term of 30 years from December 15, 2012. The Bang Pa-in - Pak Kret Expressway Project Agreement (Udon Ratthaya Expressway) has a term of 30 years from September 27, 1996, and may be renewed twice of 10 years each. These Agreements require the Company and NECL to be responsible for expenses relating to toll collection, traffic management and rescue operation on the expressways, including the costs of maintenance of the expressways under the relevant Agreements throughout the terms and conditions of the Agreements.

On February 18, 2020, the Council of Ministers' Meeting agreed to amend the Agreements for Settlement of the Disputes between the Company/the subsidiary and the Expressway Authority of Thailand (EXAT), and on February 20, 2020, the Company/the subsidiary and EXAT signed the Second Stage Expressway Agreement (Amendment) and the Bang Pa-in - Pak Kret Expressway Agreement (Amendment), which significantly amended as follows:

Expressway	Toll revenue sharing EXAT : the Company / the subsidiary	Renewal period	Remaining period of time for entitled to renewal *
The Second Stage Sector A B C	The First Stage and the Second Stage Sector A B 60 : 40 Sector C 0 : 100	15 years 8 months to October 2035	4 years 4 months

Expressway	Toll revenue sharing EXAT : the Company / the subsidiary	Renewal period	Remaining period of time for entitled to renewal *
The Second Stage Sector D	0 : 100	8 years 6 months to October 2035	11 years 6 months
Bang Pa-in - Pak Kret	0 : 100	9 years 1 month to October 2035	10 years 11 months

* The remaining periods of time entitled to renewal under the existing Agreements

Revision of fixed toll rates every 10 years from September 1, 2018 for the Second Stage Expressway Agreement, and revision of toll rates every 10 years from November 1, 2018 for the Bang Pa-in - Pak Kret Expressway Agreement, in accordance with the agreements.

4.1.3 Rights to Use Sites for Expressway Construction

As of December 31, 2019, the book value of the rights to use sites for expressway construction as per the consolidated financial statements of the Company was as follows:

(Unit: Million Baht)

Company	Net Book Value
The Company	62

The rights to use sites for expressway construction are considered as a part of the rights to operate completed expressway sectors. The Company recorded the initial costs of the rights to use sites for expressway construction at the costs equivalent to the present value of the encumbrance in payment of compensation for site acquisition cost to EXAT under the Second Stage Expressway Agreement after initial recognition of the rights to use sites for expressway construction which showed the value at costs, less accumulated amortization. The Company amortized the rights to use sites for expressway construction as expenses in the income statement based on the volume of vehicles using service.

4.1.4 Intangible Assets under the Concession Agreement for the MRT Blue Line Project

As of December 31, 2019, the book value of intangible assets under the Concession Agreement for the MRT Blue Line Project as per the consolidated financial statements of the Company and its subsidiary were as follows:

(Unit: Million Baht)

Company	Net Book Value
The Company	41,999
BMN	340
Total	42,339

The intangible assets under the Concession Agreement for the MRT Blue Line Project are considered the costs of construction of the MRT Blue Line Project, with the details as of December 31, 2019, comprising:

(Unit: Million Baht)

Company	Class of Assets	Net Book Value	Ownership	Encumbrance
The Company	M&E Equipment	28,324	Owner	None
The Company	M&E Equipment and leasehold improvements, telecommunications system equipment, and advertising system equipment in metro stations	929	Owner	None

(Unit: Million Baht)

Company	Class of Assets	Net Book Value	Ownership	Encumbrance
BMN	M&E Equipment and leasehold improvements, telecommunications system equipment, and advertising system equipment in metro stations	338	Owner	None
The Company	Project costs during construction	12,746	Owner	None
BMN	Project costs during construction	2	Owner	None
Total Net Book Value		42,339		

4.2 Investments in Other Companies

4.2.1 Summary of Investments as per the Financial Statements

As of December 31, 2019, the book value of investments in other companies as per the Company's separate financial statements was as follows:

(Unit: Million Baht)

Company	Book Value under Cost Method	Portion of Investment in each Company (percent)	Paid-up Capital	Type of Investments	Nature of Business Operations
1. Northern Bangkok Expressway Company Limited Less: Provision for impairment of investments Net investments	2,604 (2,450) <u>154</u>	99.99	5,250	Subsidiary	- Construction and operation of the Bang Pa-in - Pak Kret Expressway Project
2. Bangkok Metro Networks Limited Less: Provision for impairment of investments Net investments	495 (16) <u>479</u>	89.67	254	Subsidiary	- Development of lease retail spaces in the metro stations and the basement level of the park and ride facility - Procurement of advertising boards or media in the metro stations and inside the trains - Provision of service and maintenance of telecommunications system equipment in the metro stations
3. TTW Public Company Limited	4,061	18.47	3,990	Other Company	- Production and distribution of tap water
4. CK Power Public Company Limited	2,929	16.17	8,129	Other Company	- Investment in other companies (Holding Company) operating the energy business
5. Eastern High-Speed Rail Linking Three Airports Company Limited	400	10.00	4,000	Other Company	- Development of electric railway projects

4.2.2 Policy on Investment and Management in the Subsidiaries

The Company has the policy to invest in businesses which are related, similar, or beneficial, and support the Company's business operations, in order to provide opportunities and long-term yields, and strengthen the Company's stability and operational results. The investment policy shall be as follows:

1. To invest in projects or acquire ordinary shares in project operators, in a manner of long-term investments;
2. To invest up to the minimum proportion to allow the Company to participate in setting out policies, monitoring and reviewing operations of such companies so invested;
3. Not to invest in any project giving rise to environmental impact or contrary to the good moral of the society.

As of December 31, 2019, the Company invested in the subsidiaries and other companies, as follows:

1) Northern Bangkok Expressway Company Limited ("NECL")

The Company established NECL in 1996, by holding 99.99 percent of its shares. The benefits to be derived shall be in the form of a dividend from investment in shares of NECL. Due to the impact on NECL from the government policy for construction of the competing road, NECL's revenue did not meet its projection. In this regard, NECL's operational results continued to sustain a loss to the extent that the accumulated loss exceeded its equity, resulting in shareholders' deficit. In 2003, NECL, therefore, increased its registered capital by Baht 3,000 Million to become the registered capital of Baht 6,000 Million. At present, NECL called for share payment of 75 percent of the increased registered capital of Baht 3,000 Million. NECL has started to generate profits since 2013 onwards. The Company has assigned its five executives to be members of NECL's board of directors, from a total of six directors of NECL. In case NECL would take any actions which may significantly affect the Company, NECL would be required to seek prior approval from the Company's Board of Directors' Meeting. Furthermore, the Company is also the service provider for all operations of NECL.

As of December 31, 2019, NECL's registered and paid-up capital was Baht 5,250 Million. The Company's shareholding in NECL was 99.99 percent of its registered capital.

2) Bangkok Metro Networks Limited ("BMN")

The Company established BMN on February 25, 2009, to operate the businesses of procurement and production of advertising media in various forms inside the metro stations and inside the trains, lease of retail spaces in the M.R.T. Chaloem Ratchamongkhon Line Project (MRT Blue Line) stations and spaces in the basement level of the Lat Phrao park and ride facility. In addition, BMN also provides service and maintains telecommunications system equipment inside the metro stations. Subsequently, in October 2018, the Company, who shall be exclusively entitled to commercial development in the M.R.T. Chaloem Ratchamongkhon Line Project in accordance with the Concession Agreement for the MRT Blue Line Project dated March 31, 2017, entered into an agreement engaging BMN as a management representative for all commercial development in lieu of granting of the commercial development right.

As of December 31, 2019, BMN's registered and paid-up capital was Baht 254 Million, whereby the Company holds shares in BMN representing 89.67 percent of all BMN's shares sold.

In this regard, the Company has a control policy or participates in setting out the significant policies on the business operations by assigning its five representatives to be members of BMN's board of directors, from a total of seven directors of BMN.

3) TTW Public Company Limited (“TTW”)

The Company invested in TTW which operates the business of production and distribution of tap water to the Provincial Waterworks Authority in the vicinity of Nakhon Pathom Province and Samut Sakhon Province, under the Water Purchase and Sale Agreement with the Provincial Waterworks Authority with a 30-year contract term from July 21, 2004. TTW invested in Pathum Thani Water Co., Ltd., representing 98 percent of its registered capital, whereby such company operates the business of production and distribution of tap water in the vicinity of Pathum Thani and Rangsit, under the Water Purchase and Sale Agreement with the Provincial Waterworks Authority with a 25-year contract term from October 15, 1998. TTW also invested in Thai Water Operations Company Limited which operates the business of operation and management of tap water production and distribution systems and wastewater treatment service provisions, whereby TTW holds shares representing 68 percent of its registered capital. In addition, TTW invested in the energy business by holding 24.98 percent of shares in CK Power Public Company Limited, a company investing in other companies operating the energy business. The benefits to be derived by the Company from investment in TTW shall be in the form of dividend income.

The Company, as a shareholder, assigned its representative to be a member of the board of directors of TTW. As of December 31, 2019, the Company held shares in TTW representing 18.47 percent of its registered capital.

4) CK Power Public Company Limited (“CKP”)

The Company invested in CKP, which operates core business by investing in other companies (Holding Company) operating the business of production and distribution of electricity from various types of energy. As of December 31, 2019, CKP invested by holding shares representing 61.33 percent in SouthEast Asia Energy Limited; 30 percent in Nakhon Ratchasima Solar Limited; 30 percent in Chiangrai Solar Limited; 100 percent in Bangkhengchai Company Limited; 65 percent in Bangpa-in Cogeneration Limited; and 37.50 percent in Xayaburi Power Company Limited. The benefits to be derived by the Company shall be in the form of a dividend from the investment.

The Company, as a shareholder, assigned its representative to be a member of the board of directors of CKP. As of December 31, 2019, the Company held shares in CKP representing 16.17 percent of its registered capital.

5) Eastern High-Speed Rail Linking Three Airports Company Limited (“EHSR”)

The Company invested in EHSR, which was established by CPH Group to carry out the development of electric railway projects, designs and construction works, civil works, in association with other projects, supply of M&E Systems and rolling stocks, including provision of train operations and maintenance services, and development of areas for support the electric railway services of the project, for a period of 50 years (with the construction period of 5 years and the operation period of 45 years). The benefits to be derived by the Company shall be in the form of a dividend from the investment.

The Company, as a shareholder, assigned its representative to be a member of the board of directors of EHSR. As of December 31, 2019, the Company held shares in EHSR representing 10 percent of its registered capital.

5. Legal Disputes

5.1 Disputes with the Expressway Authority of Thailand (“EXAT”)

The Company and the subsidiary had a total of 19 disputes with EXAT, which were referred to the Panel and the Arbitral Tribunal in accordance with the dispute settlement procedures under the Agreements and in the Administrative Court. Currently, EXAT and the Company/the subsidiary have reached an agreement to settle all disputes between each other. The essence of each dispute was as follows:

5.1.1 Disputes submitted by the Company and the subsidiary claiming damages in 11 disputes, with the total amount until the date of submission of the disputes of approximately Baht 54,503.77 Million

1. Priority Component Opening Date under the Second Stage Expressway Agreement

On July 9, 2001, the Company submitted a statement of claim requiring EXAT to compensate for the deficient revenue, together with interest, due to different opinions as to which the date was the Priority Component Opening Date, which affected the commencement of the toll revenue sharing with the Company under the Agreement. The Arbitral Tribunal rendered its arbitral award on the dispute requiring EXAT to pay the toll revenue sharing as claimed by the Company, together with interest under the Agreement.

The Central Administrative Court rendered the judgment on September 13, 2013 enforcing under the Company’s petition requiring EXAT to compensate the Company, with additional calculation until the date of the plaint, in the total amount of Baht 5,021.1 Million. Subsequently, on October 11, 2013, EXAT lodged an appeal against the Central Administrative Court’s judgment with the Supreme Administrative Court. This case is pending the Supreme Administrative Court’s consideration.

The Company and EXAT have reached an agreement to settle this dispute.

2. Issuance of variation orders by EXAT

On December 9, 2009, the Company submitted a statement of claim requiring EXAT to compensate the Company for damages caused by EXAT’s issuance of additional variation orders for certain construction work of the Si Rat Expressway in the total amount of Baht 209.1 Million (excluding interest). The Arbitral Tribunal unanimously rendered its arbitral award requiring EXAT to pay the construction costs and expenses as per the Notice of Variation in the total amount of Baht 382.5 Million, including interest under the Agreement.

EXAT submitted a petition to the Central Administrative Court requesting the Court to revoke the arbitral award while the Company submitted a petition for enforcement of the arbitral award. On September 19, 2019, the Central Administrative Court adjudged to revoke the arbitral award and dismiss the Company’s petition for enforcement of the arbitral award.

The Company lodged an appeal against the Central Administrative Court’s judgment with the Supreme Administrative Court on October 18, 2019. This case is pending the Supreme Administrative Court’s consideration.

The Company and EXAT have reached an agreement to settle this dispute.

3. Revision of toll rates of the Chalerm Mahanakorn Expressway and the Si Rat Expressway for the year 2003

On May 14, 2008, the Company submitted a statement of claim requiring EXAT to compensate the Company for damages caused by the revision of toll rates of the Chalerm Mahanakorn Expressway and the Si Rat Expressway for 2003, which was not in accordance with the Agreement, thereby causing the damages, including interest, in the total amount of Baht 4,368 Million. The Arbitral Tribunal, by the majority of votes, rendered its arbitral award requiring EXAT to compensate the Company for damages as claimed by the Company in the amount of Baht 4,368 Million, together with interest under the Agreement.

A) EXAT submitted a petition requesting revocation of the arbitral award, and on May 14, 2019, the Central Administrative Court adjudged to dismiss EXAT’s petition requesting revocation of the arbitral award, and on June 12, 2019, EXAT lodged an appeal against the Central Administrative Court’s judgment with the Supreme Administrative Court. The Company and EXAT have reached an agreement to settle this dispute.

- B) The Company filed a petition for enforcement of the arbitral award with the Central Administrative Court on February 12, 2019. At present, this case is pending the Central Administrative Court's consideration.

The Company and EXAT have reached an agreement to settle this dispute.

4. Revision of toll rates of Sector D of the Si Rat Expressway for the year 2003

On July 24, 2008, the Company submitted a statement of claim requiring EXAT to compensate the Company for damages caused by the revision of toll rates of Sector D of the Si Rat Expressway for the year 2003, which was not in accordance with the Agreement. The Arbitral Tribunal rendered the final award requiring EXAT to compensate the Company for damages, together with interest, in the total amount of Baht 1,048.2 Million, together with interest under the Agreement on the principal of the damages of Baht 914.3 Million from June 1, 2008 until EXAT would make such payment in full, and compensate for damages representing the difference between the toll rates under the Ministry of Transport's Announcement dated August 29, 2003 and the toll revenue sharing entitled to the Company under the Agreement, from June 1, 2008 until August 31, 2008, including default interest under the Agreement from June 1, 2008 onwards until EXAT would pay the damages, together with interest to the Company in full.

On July 25, 2019, EXAT filed a petition requesting the Court to revoke such arbitral award with the Central Administrative Court. At present, this dispute is pending the Central Administrative Court's consideration.

The Company and EXAT have reached an agreement to settle this dispute.

5. Revision of toll rates of the Chalerm Mahanakorn Expressway and the Si Rat Expressway for the year 2008

On June 13, 2013, the Company submitted a statement of claim requiring EXAT to compensate the Company for damages caused by the revision of toll rates (of the Chalerm Mahanakorn Expressway and the Si Rat Expressway) for the year 2008, which was not in accordance with the Agreement. The Arbitral Tribunal unanimously rendered the final award requiring EXAT to compensate the Company for damages, together with interest, in the total amount of Baht 9,091.8 Million, together with interest under the Agreement on the principal of the damages of Baht 7,909.6 Million from June 1, 2013 until EXAT would make such payment in full, and also compensate for damages representing the difference between the toll rates under the Ministry of Transport's Announcement dated August 15, 2008 and the toll revenue sharing entitled to the Company under the Agreement, from June 1, 2013 onwards, including default interest under the Agreement.

On January 25, 2019, EXAT filed a petition requesting to revoke the arbitral award with the Central Administrative Court. At present, this case is pending the Central Administrative Court's consideration.

The Company and EXAT have reached an agreement to settle this dispute.

6. Revision of toll rates of Sector D of the Si Rat Expressway for the year 2008

On June 28, 2013, the Company submitted a statement of claim to the Arbitral Tribunal requiring EXAT to compensate the Company for damages caused by the revision of toll rates of Sector D of the Si Rat Expressway for the year 2008, which was not in accordance with the Agreement, in the total amount of Baht 4,062.8 Million, including interest under the Agreement. At present, this dispute is pending the arbitration proceedings.

The Company and EXAT have reached an agreement to settle this dispute.

7. Increase in toll rates of the Chalerm Mahanakorn Expressway and the Si Rat Expressway for the year 2013

On August 16, 2018, the Company submitted a statement of claim to the Arbitral Tribunal requiring EXAT to compensate the Company for damages caused by the revision of toll rates (of the Chalerm Mahanakorn Expressway and the Si Rat Expressway) for the year 2013, which was not in accordance with the Agreement, in the total amount of Baht 14,662.7 Million, together with interest under the Agreement. At present, this dispute is pending the arbitration proceedings.

The Company and EXAT have reached an agreement to settle this dispute.

8. Increase in toll rates of Sector D of the Si Rat Expressway for the year 2013

On August 21, 2018, the Company submitted a statement of claim to the Arbitral Tribunal requiring EXAT to compensate the Company for damages caused by the revision of toll rates of Sector D of the Si Rat Expressway for the year 2013, which was not in accordance with the Agreement, in the total amount of Baht 6,936.4 Million, together with interest under the Agreement. At present, this dispute is pending the arbitration proceedings.

The Company and EXAT have reached an agreement to settle this dispute.

9. Revision of toll rates of the Udon Ratthaya Expressway for the year 2003

On October 22, 2013, the subsidiary submitted a statement of claim to the Arbitral Tribunal requiring EXAT to compensate the subsidiary for damages caused by the revision of toll rates of the Udon Ratthaya Expressway for the year 2003, which was not in accordance with the Agreement, in the amount of Baht 908.7 Million, together with interest under the Agreement. At present, this dispute is pending the arbitration proceedings.

The subsidiary and EXAT have reached an agreement to settle this dispute.

10. Revision of toll rates of the Udon Ratthaya Expressway for the years 2008 and 2013

On August 21, 2018, the subsidiary submitted a statement of claim to the Arbitral Tribunal requiring EXAT to compensate the subsidiary for damages caused by the revision of toll rates of the Udon Ratthaya Expressway for the years 2008 and 2013, which was not in accordance with the Agreement, in the amount of Baht 4,724.8 Million, together with interest under the Agreement. At present, this dispute is pending the arbitration proceedings.

The subsidiary and EXAT have reached an agreement to settle this dispute.

11. Competing road with the Udon Ratthaya Expressway for the years 1999-2000

On December 20, 2004, the subsidiary submitted a statement of claim requiring EXAT to compensate for the deficient revenue, based on the grounds that the Government granted permission for construction of the Extension of the Don Muang Tollway Project, from the National Memorial to Rangsit Section, which constituted a competing road under the Agreement, and also be affected the financial position of the subsidiary, thereby rendering such damages until the date of submission of the dispute (excluding interest) to Baht 1,790 Million. The Arbitral Tribunal rendered its arbitral award on November 27, 2008 requiring EXAT to compensate the subsidiary for such deficient revenue as claimed by the subsidiary, together with interest.

EXAT refused to comply with the arbitral award and filed a petition for revocation of the arbitral award with the Central Administrative Court while the subsidiary filed its petition for enforcement of the arbitral award with the Central Administrative Court in the disputed amount of Baht 3,296 Million. Subsequently, the Central Administrative Court rendered the judgment on May 3, 2013 dismissing EXAT's petition for revocation of the arbitral award and adjudged to enforce the arbitral award.

On May 31, 2013, EXAT lodged an appeal against the judgment of the Central Administrative Court with the Supreme Administrative Court. On September 21, 2018, the Supreme Administrative Court affirmed the judgment of the Administrative Court of First Instance enforcing compliance with the arbitral award requiring EXAT to compensate for the revenue which decreased from the estimate under the Bang Pa-in - Pak Kret Expressway Agreement to the subsidiary in the amount of Baht 1,790 Million, comprise of the compensation for revenue in 1999 in amount of Baht 730.8 Million with interest from June 14, 2000 until EXAT would make such payment in full, and the compensation for the revenue in 2000 in the amount of Baht 1,059.2 Million with interest from March 22, 2001 until EXAT would make such payment in full. EXAT shall completely comply with the judgment within 90 days from the date of the Supreme Administrative Court's judgment, which expired on December 20, 2018.

On October 2, 2018, the Council of Ministers' Meeting resolved that in order to alleviate the loss and damage which would occur to the state and to protect the utmost benefits of the government sector in the case that the state agency has the dispute under the Court of Arbitration or is filed a lawsuit with the Administrative Court as one or several cases in the same issue or as connected thereto, for instance, the case under the responsibility of the Ministry of Transport (Expressway Authority of Thailand), on which the Arbitral Tribunal rendered its arbitral award, thereby giving rise to the case proceedings in the Supreme Administrative Court, in which case, the Arbitral Tribunal rendered its arbitral award requiring the state agency to

compensate for the damages or others; as a result, the resolution was passed to require that such state agency may conduct a negotiation with its disputing party to alleviate the damages of the state and to ensure the justice for the people, provided that such negotiation shall be conducted transparently and legitimately by mainly taking into account the benefits of the nation.

Subsequently, EXAT issued a letter dated October 31, 2018 to the subsidiary informed that EXAT's Board of Directors appointed a subcommittee to consider determining the guidelines for compliance with the judgment of the Supreme Administrative Court of the dispute in the case of the competing road (the Subcommittee) between EXAT and the subsidiary, so as to consider determining the guidelines for compliance with such judgment of the Supreme Administrative Court, as well as conducting a negotiation with the subsidiary.

On December 19, 2018, EXAT and the subsidiary issued a letter to the Administrative Case Execution Bureau reply to the Administrative Case Execution Bureau's letter dated October 11, 2018 regarding compliance with the judgment of the Supreme Administrative Court that it was in the process of negotiation to reach a settlement in complying with the judgment of the Supreme Administrative Court.

On December 20, 2018, EXAT's Board of Directors and the Company/the subsidiary negotiated and came to the conclusion about guidelines for the dispute settlement of all cases between EXAT and the Company/the subsidiary under the Second Stage Expressway Agreement (Sectors A, B, and C), the Agreement for the Extension of the Second Stage Expressway System (Sector D), and the Bang Pa-in - Pak Kret Expressway Agreement. On December 21, 2018, the Company and the subsidiary reached the mutual agreement with EXAT for conciliation and settlement of all disputes, including the disputes regarding competing road, in which the Notice of claim has been issued to require EXAT to comply with the Agreements, in the amount of Baht 74,590 Million.

The aforesaid mutual agreement could be summarized as follows:

- A) EXAT and the Company/the subsidiary agreed to settle all disputes which already took place or would take place in the future in connection with the Concession Agreements in the same disputed issues.
- B) EXAT and the Company/the subsidiary mutually agreed to amend the Concession Agreements, as follows:
 - B1. The respective periods of time of the Second Stage Expressway Agreement (Sectors, A, B, and C), the Agreement for the Extension of the Second Stage Expressway System (Sector D), and the Bang Pa-in - Pak Kret Expressway Agreement, shall be extended from which would formerly end in 2020, 2027, and 2026, respectively, to end on April 21, 2057.
 - B2. The Company shall provide the O&M Services of the Second Stage Expressway and the subsidiary shall provide the O&M Services of the Bang Pa-in - Pak Kret Expressway, provided that the Company and the subsidiary are entitled to receive toll revenue sharing throughout the respective concession agreement periods at the rate of 40 to 100 percent according to the routes specified therein.
 - B3. Revision of toll rates shall be revised to increase at the fixed rate every 10 years.
 - B4. The Company shall have the duty to invest, construct and improve the Second Stage Expressway in the total amount of approximately Baht 31,500 Million to solve the traffic problem.

Thereafter, in 2019, EXAT additionally negotiated with the Company and the subsidiary until the mutual agreement could be achieved on May 15, 2019. Moreover, the additional negotiation was conducted under the Ministry of Transport's intention requiring EXAT to carry out review until the settlement could be reached on January 6, 2020. The results of the additional negotiation for settlement of the disputes can be summarized as follows:

- EXAT and the Company/the subsidiary have agreed to settle all disputes under the existing agreements between each other, whether it be past, present or future disputes.
- The settlement of the disputes by the way of extension of the Concession Agreements shall be made without requiring investment in improvement of the expressways and construction of the Double Deck, provided that the three agreements shall be extended to end on October 31, 2035.

- The Company and the subsidiary shall remain entitled to the full renewal of the Agreements as specified in the existing Agreements, namely, the respective remaining periods of time entitled to renewal under the existing Agreements shall be 4 years and 4 months for the Second Stage Expressway Agreement; 11 years and 6 months for the Agreement for the Extension of the Second Stage Expressway System (Sector D), and 10 years and 11 months for the Bang Pa-in - Pak Kret Expressway Project Agreement from the end of the term of the amended Agreement.

On February 18, 2020, the Council of Ministers has resolved to approve the amendment of the Agreements for settlement of the disputes, and on February 20, 2020, the subsidiary and EXAT have signed the Bang Pa-in - Pak Kret Expressway Project Agreement (Amendment).

The subsidiary and EXAT have reached an agreement to settle this dispute by issuing a letter to the Administrative Case Execution Bureau in order to disclaim the compulsory execution.

5.1.2 Disputes submitted by EXAT claiming damages in 3 disputes, with the total amount until the date of submission of the disputes of approximately Baht 1,589.2 Million

1. Cost of arrangements of the entrance - exit and resolution of complaints

On May 11, 2007, EXAT submitted a statement of claim requiring the Company to be responsible for the cost of arrangements of the entrance - exit claimed by complainants, and the cost of free flow drains, in the total amount of Baht 0.4 Million, which the Arbitral Tribunal rendered its arbitral award ruling that EXAT had no right to claim such costs.

EXAT submitted a petition for revocation of the arbitral award to the Central Administrative Court. Subsequently, the Central Administrative Court rendered the judgment on August 30, 2017 revoking the arbitral award, only in respect of the Arbitral Tribunal's acceptance for consideration of the second disputes in case of free flow drains, as EXAT submitted the statement of claim after the statute of limitations of such dispute had expired.

On September 29, 2017, the Company lodged an appeal against the Central Administrative Court's judgment with the Supreme Administrative Court. At present, this case is pending the Supreme Administrative Court's consideration.

EXAT and the Company have reached an agreement to settle this dispute.

2. Construction of the Udon Ratthaya Expressway, Phase 2

On January 29, 2016, EXAT submitted a statement of claim to the Arbitral Tribunal requiring the subsidiary to complete the construction of the Udon Ratthaya Expressway, Phase 2 in accordance with the Bang Pa-in - Pak Kret Expressway Agreement, and to compensate in the amount of Baht 1,587.7 Million, together with interest under the Agreement. The Agreement specifies that although the conditions under the Agreement have been completed for construction commencement, should EXAT breach the Agreement that gives rise to the subsidiary's serious financial impact, and as a result, the subsidiary has not yet been required to commence the construction. In this regard, EXAT breached the Agreement on the competing road and the revision of toll rates, the subsidiary then shall have the right not to commence the construction yet, and EXAT shall not have the right to claim any fines. At present, this dispute is pending the arbitration proceedings.

EXAT and the subsidiary have reached an agreement to settle this dispute.

3. Cost of utilization of the Control Center Building (Bang Phun)

On February 27, 2009, EXAT submitted a statement of claim to the Arbitral Tribunal requiring the subsidiary to be responsible for the cost of utilization of the Control Center Building (Bang Phun) in the amount of Baht 1.1 Million, which the subsidiary was of the view that such cost claimed by EXAT was not within its scope of responsibility under the Agreement. At present, this dispute is pending the arbitration proceedings.

EXAT and the subsidiary have reached an agreement to settle this dispute.

5.1.3 Disputes submitted to the Panel where the Company/the subsidiary are pending submission to the Arbitral Tribunal claiming damages in 4 disputes, and another dispute is pending the Panel, with the total of disputed amount until the date of submission of the disputes of approximately Baht 78,181.9 Million.

1. Revision of toll rates of the Chalerm Mahanakorn Expressway and the Si Rat Expressway for the year 2018

On November 16, 2018, the Company requested EXAT to compensate for the damages from September 1, 2018 to October 31, 2018, together with the interest, in the amount of Baht 592.9 Million, and the interest on the principal of the damages in the amount of Baht 590.8 Million on a daily basis from November 1, 2018 onwards, and compensate for damages representing the differences of toll revenue under the Ministry of Transport's Announcement dated August 2, 2013, from November 1, 2018, onwards together with the default interest under the Agreement.

On July 5, 2019, EXAT and the Company could not amicably reach an agreement on the scheduled meeting date, the Panel then deemed appropriate to settle consideration and required the dispute to be referred to the arbitration proceedings. The dispute has not been submitted to the Arbitral Tribunal.

The Company has agreed to settle this dispute by not submitting it to the Arbitral Tribunal.

2. Revision of toll rates of the Si Rat Expressway Sector D for the year 2018

On November 16, 2018, the Company requested EXAT to compensate for the damages from September 1, 2018, to October 31, 2018, together with the interest, in the amount of Baht 289.3 Million, and the interest on the principal of the damages in the amount of Baht 288.3 Million on a daily basis from November 1, 2018, onwards, and compensate for damages representing the differences of toll revenue under the Ministry of Transport's Announcement dated August 2, 2013, from November 1, 2018, onwards together with the default interest under the Agreement. On July 5, 2019, EXAT and the Company could not amicably reach an agreement on the scheduled meeting date, the Panel then deemed appropriate to settle consideration and required the dispute to be referred to the arbitration proceedings. The dispute has not been submitted to the Arbitral Tribunal.

The Company has agreed to settle this dispute by not submitting it to the Arbitral Tribunal.

3. Revision of toll rates of Udon Ratthaya Expressway for the year 2018

On November 16, 2018, the subsidiary requested EXAT to compensate for the damages from November 1, 2018 to November 11, 2018, together with the interest, in the amount of Baht 24.92 Million, and the interest on the principal of the damages in the amount of Baht 24.90 Million on a daily basis from November 12, 2018, onwards, and compensate for damages representing the differences of toll revenue under the Ministry of Transport's Announcement dated August 2, 2013, from November 12, 2018, onwards together with the default interest under the Agreement. On July 5, 2019, EXAT and the subsidiary could not amicably reach an agreement on the scheduled meeting date, the Panel then deemed appropriate to settle consideration and required the dispute to be referred to the arbitration proceedings. The dispute has not been submitted to the Arbitral Tribunal.

The subsidiary has agreed to settle this dispute by not submitting it to the Arbitral Tribunal.

4. Competing road with the Udon Ratthaya Expressway for the years 2001 - 2017

Based on the grounds that the Government granted permission for construction of the Extension of the Don Muang Tollway Project, from the National Memorial to Rangsit Section, which was adjudged by the Supreme Administrative Court to constitute a competing road for the years 1999-2000 on September 17, 2018 requiring EXAT to compensate the subsidiary for the decreased revenue, it was obvious and settled that the subsidiary was actually affected by such construction of the competing road. Therefore, on May 3, 2019, the subsidiary requested EXAT to compensate for the toll revenues for the years 2001 - 2017 which decreased from the forecast under the Agreement in the amount of Baht 46,300.2 Million, together with interest based on the accumulated calculation until April 30, 2019 in the amount of Baht 25,925.3 Million, and compensate for the interest on the principal of the damages in the amount of Baht 46,300.2 Million calculated from May 1, 2019 until EXAT would compensate the subsidiary for the principal together with interest in the amount of Baht 72,225.5 Million in full. On December 4, 2019, EXAT and the subsidiary could not amicably reach an agreement, the Panel then deemed appropriate to settle consideration and required the dispute to be referred to the arbitration proceedings. The dispute has not been submitted to the Arbitral Tribunal.

The subsidiary has agreed to settle this dispute by not submitting it to the Arbitral Tribunal.

5. Competing road with the Udon Rattaya Expressway for the year 2018

On October 29, 2019, the subsidiary requested EXAT to compensate for the toll revenue for the year 2018 which decreased from the forecast under the annex of Bang Pa-in - Pak Kret Expressway Agreement in the amount of Baht 4,771 Million, together with interest based on the accumulated calculation until October 29, 2019 in the amount of Baht 278.3 Million, and compensate for the interest on the principal of the damages in the amount of Baht 4,771 Million calculated from October 30, 2019 until EXAT would compensate the subsidiary for the principal together with interest in the amount of Baht 5,049.3 Million in full. At present, this dispute is pending the Panel's consideration.

The subsidiary has agreed to settle this dispute.

All disputes are part of negotiation for the amendment of the Agreements to settle the disputes of the Second Stage Expressway Project (the Si Rat Expressway, including Sector D), and the Bang Pa-in - Pak Kret Expressway Agreement (the Udon Rattaya Expressway) between EXAT and the Company/the subsidiary, and on February 18, 2020, the Council of Ministers has resolved to approve the amendment of the Agreements to settle the disputes, and on February 20, 2020, the Company/the subsidiary and EXAT have already signed the Second Stage Expressway Agreement (Amendment) and the Bang Pa-in - Pak Kret Expressway Agreement (Amendment).

6. General Information and Other Significant Information

6.1 General Information

(1) General information of the Company

Company Issuing Securities	: Bangkok Expressway and Metro Public Company Limited (“BEM”)
Business Operation	: Construction and management of the expressways and the rail mass rapid transit system projects, including other related businesses
Company Registration No.	: 0107558000491
Registered Capital	: Baht 15,285 Million, which is fully paid up.
Head Office	: 587 Sutthisarn Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok 10400
Telephone	: 0 2641 4611 and 0 2354 2000
Fax	: 0 2641 4610 and 0 2354 2040
Website	: www.bemplc.co.th
Branch Office (1)	: 238/7 Asoke-Dindaeng Road, Bangkapi Subdistrict, Huai Khwang District, Bangkok 10310
Telephone	: 0 2641 4611
Fax	: 0 2641 4610
Branch Office (2)	: 189 Rama IX Road, Huai Khwang Subdistrict, Huai Khwang District, Bangkok 10310
Branch Office (3)	: 189/1 Rama IX Road, Huai Khwang Subdistrict, Huai Khwang District, Bangkok 10310
Branch Office (4)	: 189/2 Rama IX Road, Huai Khwang Subdistrict, Huai Khwang District, Bangkok 10310
Telephone	: 0 2354 2000
Fax	: 0 2354 2040

(2) Legal entities in which the Company holds 10 percent of shares or more

Company Issuing Securities	: Northern Bangkok Expressway Company Limited (“NECL”)
Business Operation	: Construction and management of the Udon Ratthaya Expressway
Head Office	: 587 Sutthisarn Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok 10400
Registered Capital	: Baht 6,000 Million, Baht 5,250 Million of which is paid up.
Shareholding Percentage	: 99.99 percent
Telephone	: 0 2641 4647
Fax	: 0 2641 4646

Company Issuing Securities	: Bangkok Metro Networks Limited (“BMN”)
Business Operation	: Procurement and production of advertising media in various forms in the MRT stations and inside the MRT trains, lease of retail space in the MRT stations, the MRT Blue Line Project and the basement level of the Lat Phrao park and ride facility, including provision of service of telecommunications system in the MRT stations and inside the MRT trains.
Head Office	: 832 Sutthisarn Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok 10400
Registered Capital	: Baht 254 Million, which is fully paid up.
Shareholding Percentage	: 89.67 percent
Telephone	: 0 2690 8200
Fax	: 0 2690 8212
Website	: www.bmn-mrt.com
Company Issuing Securities	: TTW Public Company Limited (“TTW”)
Business Operation	: Production and distribution of water supply to the Provincial Waterworks Authority and investment in companies operating the business of other public utilities
Head Office	: 30/130 Moo 12, Buddhamonthon 5 Road, Tambon Rai Khing, Amphoe Samphran, Nakhon Pathom Province 73210
Registered Capital	: Baht 3,990 Million, which is fully paid up.
Shareholding Percentage	: 18.47 percent
Telephone	: 0 2811 7526
Fax	: 0 2420 6064
Website	: www.ttwplc.com
Company Issuing Securities	: CK Power Public Company Limited (“CKP”)
Business Operation	: Investment by holding shares in other companies (Holding Company) operating the business of production and distribution of electricity from various types of energy
Head Office	: 587 Viriyathavorn Building, 19 th Floor, Sutthisan Winitchai Road, Ratchadaphisek Subdistrict, Dindaeng District, Bangkok 10400
Registered Capital	: Baht 9,240 Million, Baht 7,370 Million of which is paid up.
Shareholding Percentage	: 16.17 percent
Telephone	: 0 2691 9720
Fax	: 0 2691 9723
Website	: www.ckpower.co.th

Company Issuing Securities : **Eastern High-Speed Rail Linking Three Airports Company Limited (“EHSR”)**

Business Operation : Development of railway projects, performance of design and construction, civil works in association with other projects, supply of M&E Systems and rolling stocks, including provision of train operation and maintenance services, and development of areas for support the rail services of the project.

Head Office : 313 C.P. Tower, 14th Floor, Silom Road, Silom Subdistrict, Bangrak District, Bangkok 10500

Registered Capital : Baht 4,000 Million, which is fully paid up.

Shareholding Percentage : 10.00 percent

Telephone : 0 2858 3149

(3) Reference

Securities Registrar : **Thailand Securities Depository Company Limited**

The Stock Exchange of Thailand

93 Rachadapisek Road, Dindaeng Subdistrict,
Dindaeng District, Bangkok 10400

Telephone : 0 2009 9382

Fax : 0 2009 9476

Auditor : **EY Office Limited**

193/136-137 Lake Rajada Office Complex, 33rd Floor,
New Rajadapisek Road

Klongtoey District, Bangkok 10110

Telephone : 0 2264 0777

Fax : 0 2264 0789

Legal Advisor : **The Legists Group**

Abdulrahim Place, 9th Floor

No. 990 Rama IV Road, Silom Subdistrict

Bangrak District, Bangkok 10500

Telephone : 0 2636 1111

Fax : 0 2636 0000

Financial Advisor	: Advisory Plus Company Limited 1550 Thanapoom Tower, 10 th Floor New Petchburi Road, Makkasan Subdistrict Ratchathewi District, Bangkok 10400 Telephone : 0 2652 7858-64 Fax : 0 2652 7867
Debenture Registrars	: Siam Commercial Bank Public Company Limited 1060 New Phetchaburi Road, Makkasan Subdistrict Ratchathewi District, Bangkok 10400 Telephone : 0 2544 3924 Fax : 0 2937 7783 : Krung Thai Bank Public Company Limited 977/2 Phaholyothin Road, Samsen Nai Subdistrict Phayathai District, Bangkok 10400 Telephone : 0 2298 0831 Fax : 0 2298 0835
Debenture Holders' Representative	: Siam Commercial Bank Public Company Limited 1060 New Phetchaburi Road, Makkasan Subdistrict Ratchathewi District, Bangkok 10400 Telephone : 0 2128 2316-7 Fax : 0 2128 4621
Regularly Contacted Financial Institutions	: Krung Thai Bank Public Company Limited 35 Sukhumvit Road, Khlong Toei Nuea Subdistrict Watthana District, Bangkok 10110 Telephone : 0 2208 4631-9 Fax : 0 2256 8619 : Siam Commercial Bank Public Company Limited 9 Ratchadaphisek Road, Chatuchak Subdistrict Chatuchak District, Bangkok 10900 Telephone : 0 2256 2323

: **TMB Bank Public Company Limited**

3000 Phaholyothin Road, Chom Thong Subdistrict

Chatuchak District, Bangkok 10900

Telephone : 0 2299 2511-2

Fax : 0 2299 2752

: **Bangkok Bank Public Company Limited**

333 Silom Road, Silom Subdistrict

Bang Rak District, Bangkok 10500

Telephone : 0 2230 1036

Fax : 0 2230 2722

6.2 Other Significant Information

- None -