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## **Part 1 Business Operations**

### **1. Business Policy and Overview**

Bangkok Expressway and Metro Public Company Limited (the “Company”) is a company incorporated from the amalgamation, pursuant to the Public Limited Company Act B.E. 2535 (1992), and its amendments, 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 at December 31, 2015, 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 businesses comprise the provision of the expressway and metro services, including commercial development relating to the expressway systems and metro, which will lay a foundation for business expansion through future extension of the network routes, 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. In addition, 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 Business Overview of the Company**

##### **1.1.1 Expressway Business**

The Company has been granted concessions for construction and operation of the expressways, namely, (1) 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, and the Extension of the Second Stage Expressway System, Sector D, under the Agreement for the Extension of the Second Stage Expressway System, Sector D, with EXAT for a period of 30 years from April 17, 1997; (2) 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; and (3) the Udon Rattaya Expressway (Bang Pa-in - Pak Kret Expressway), operated by a subsidiary, namely, Northern Bangkok Expressway Company Limited (“NECL”) under the Bang Pa-in - Pak Kret Expressway Agreement with EXAT for a period of 30 years from September 27, 1996.

##### **1.1.2 Metro Business**

The Company has been granted concessions for two mass rapid transit rail system projects from the Mass Rapid Transit Authority of Thailand (“MRTA”), namely, (1) the M.R.T. Chaloe M Ratchamongkhon Line (Blue Line) (Hua Lamphong Station - Bang Sue Station) (“MRT Blue Line Project”), whereby the Company has the exclusive right to collect fare box revenue and undertake activities and commercial development, including advertising, leasing space and telecommunications services in the metro stations and in the trains for a period of 25 years from July 2, 2004; and (2) the MRT Purple Line Project, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section (Khlom Bang Phai Station - Tao Poon Station) (“MRT Purple Line Project”), Contract 4: Concession for Supply of M&E Systems and O&M Services, 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, whereby 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 repayment to the Company in the form of service fee for the O&M Services and the M&E Systems throughout the concession period of 30 years from the date of execution of the Agreement.

In addition, the Company has been selected to operate the MRT Purple Line Project, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section (Tao Poon Station - Bang Sue Station, excluding stations), Contract 5: Concession for Investment, Supply of M&E Systems and O&M Services under the resolution of the Council of Ministers on October 28, 2014, implemented under Section 16 of the Act on Private Participation in State Undertaking B.E. 2535 (1992) (“Private Participation Act”) by negotiating directly with the Company

(formerly, BMCL), whereby the Company shall have the duties to design, supply, install and test the operation of the M&E Equipment and other relevant systems, and trial run for the public service to the extent of commencement of the train operation service in connection with the MRT Blue Line Project within the specified time, as well as providing all financing for operation of Phase 1 of the Concession Agreement, Contract 5, which shall complete the works under the scope of Works in Phase 1 within 15 months, and under the scope of Works in Phase 2, O&M Services for a period of 12 months from the commencement date of train operation service for the MRT Purple Line Project under the Concession Agreement, Contract 5. At present, the draft Concession Agreement, Contract 5, is in the process of consideration and review of the contract term for further seeking approval of the Council of Ministers.

### **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 for 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; and 3) provision of service and maintenance of telecommunications system equipment inside the metro stations. In addition, as for the expressways, the Company and another subsidiary, namely, NECL, allowed private entities and individuals to take on lease of 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.

### **1.1.4 Investment in Other Companies**

The Company invests in the companies operating the public utility businesses, as follows: (1) CK Power Public Company Limited (“CKP”) operates its core business by holding shares in other companies (Holding Company) operating the business of production and distribution of energy of various types; (2) TTW Public Company Limited (“TTW”) operates the business of production and distribution of tap water to the Provincial Waterworks Authority and invests in companies which operate the business of other public utilities; and (3) Xayaburi Power Company Limited (“XPCL”) operates the main business for construction and operation of the Xayaburi Hydroelectric Power Project, located on the Mekong River, for the installed capacity of 1,285 MW.

## **1.2 Vision, Mission and Goals of Operations**

### **1.2.1 Vision**

The Company’s vision is:

“To become a leading, fully-integrated transportation service provider in Thailand and ASEAN.”

### **1.2.2 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 life;
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.

### 1.2.3 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 provision of quality services of the expressway and metro systems;
5. To build social recognition of the corporate good image.

### 1.3 Significant Changes and Developments

The Company was incorporated from the amalgamation, under the Public Limited Company Act B.E. 2535 (1992) and its amendments, between BECL and BMCL on December 30, 2015, for construction and operation of the expressways and for operation of the metro system, including commercial development relating to the metro and expressway systems.

BECL was founded on December 23, 1987 and listed on the Stock Exchange of Thailand ("Stock Exchange") since August 31, 1995. Prior to the amalgamation, BECL's registered and paid-up capital amounted to Baht 7,700,000,000, divided into 770,000,000 ordinary shares, at the par value of Baht 10 per share.

BECL constructed and operated the expressways, namely, the Si Rat Expressway (Second Stage Expressway) under the Second Stage Expressway Agreement with EXAT for a concession period of 30 years from March 1, 1990, and the Extension of the Second Stage Expressway System, Sector D, under the Agreement for the Extension of the Second Stage Expressway System, Sector D, with EXAT for a period of 30 years from April 17, 1997.

On September 14, 2012, the Company entered into 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, with a construction period of not exceeding 48 months from the date of the Notice to Proceed.

BMCL registered its incorporation on February 18, 1998, and was listed on the Stock Exchange since September 21, 2006. Prior to the amalgamation, BMCL's registered and paid-up capital amounted to Baht 7,585,000,000, divided into 20,500,000,000 ordinary shares, at the par value of Baht 0.37 per share.

BMCL entered into the Agreement for the MRT Blue Line Project with MRTA on a PPP Net Cost (AOT) basis, and BMCL had the exclusive right to collect fare box revenue and undertake activities and commercial development, including advertising, leasing space and telecommunications services in the metro stations and in the trains for a period of 25 years, from July 2, 2004 to July 1, 2029. Under such Agreement, BMCL was obliged to make payment of remuneration from fares and commercial development to MRTA at the rates as mentioned in the Agreement.

Subsequently, on September 4, 2013, BMCL entered into the Agreement for the MRT Purple Line Project with MRTA for a period of 30 years on a PPP Gross Cost (ATO) basis, namely, MRTA invested in all civil works and BMCL invested in the M&E Systems and the rolling stocks, provided that MRTA shall make a gradual repayment of the M&E Equipment to BMCL after the delivery of the ownership, and BMCL shall provide the O&M services in accordance with the service provision standards as specified in the Agreement. In this regard, 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 payment to BMCL in the form of service fee for the O&M Services from the date of BMCL's operation service until the end of the Concession Agreement.

On October 28, 2014, the Council of Ministers resolved to grant approval for implementation under Section 16 of the Act on Private Participation in State Undertaking B.E. 2535 (1992) (“Private Participation Act”) by negotiating directly with BMCL for the MRT Purple Line Project, Contract 5, on a PPP Gross Cost basis. MRTA proceeded under the procedures of the Private Participation Act and established a committee for consideration and selection of a private sector to participate in state undertaking, as well as entered into negotiations and other undertakings relating to the Project. At present, the draft Concession Agreement, Contract 5, is in the process of consideration and review of the contract term for seeking further approval of the Council of Ministers.

The MRT Purple Line Project, Contract 4, under BMCL’s responsibility, and the MRT Purple Line Project, Contract 5, will connect the MRT Purple Line Project with the existing MRT Blue Line Project at Tao Poon Station, thereby increasing the passenger volume and revenues for the existing MRT Blue Line Project under BMCL.

## Significant Changes and Development in 2015

### Amalgamation Timeline

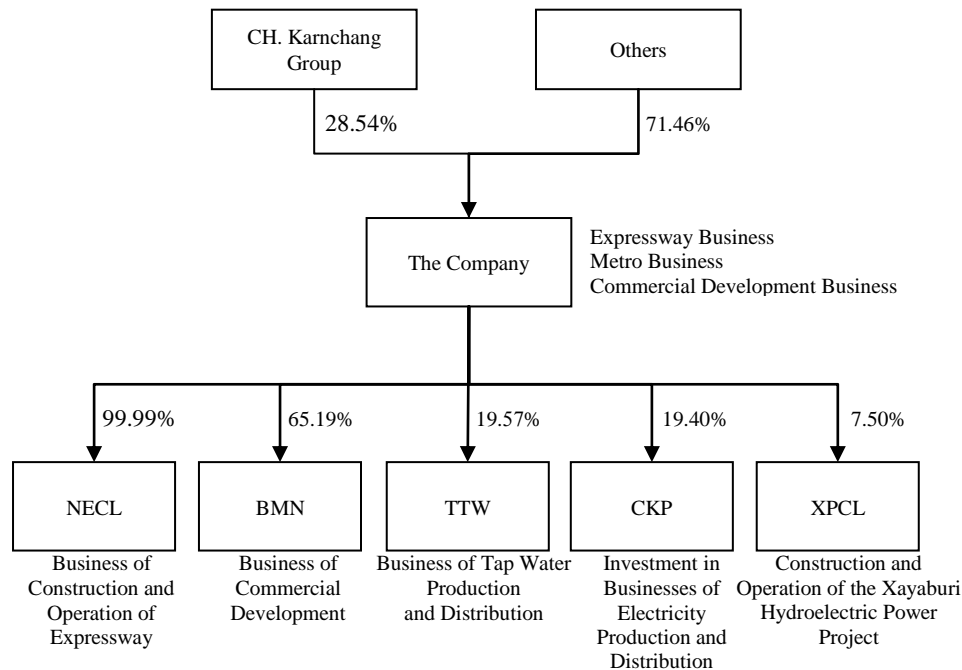
January 21, 2015	The Boards of Directors of BECL and BMCL resolved to grant approval to propose the matter to their respective shareholders’ meetings for further consideration and approval of the amalgamation.
April 2, 2015	The shareholders’ meetings of BECL and BMCL resolved to approve the amalgamation.
April 3, 2015	BECL registered its capital decrease from Baht 8,000 Million to Baht 7,700 Million.
June 24, 2015	BMCL registered the decrease of its registered capital and its paid-up capital with the Department of Business Development from Baht 20,500 Million, by Baht 12,915 Million, thereby remaining the registered capital of Baht 7,585 Million, by decreasing the par value from Baht 1 per share to Baht 0.37 per share.
July 2, 2015	BECL sold its 2,050,134,895 ordinary shares in BMCL to CH. Karnchang Public Company Limited (“CH. Karnchang Plc.”)
August 11, 2015	The Boards of Directors of BECL and BMCL resolved to grant approval to propose the matter to the Joint Shareholders’ Meeting of BECL and BMCL for consideration and approval for an extension of time for the amalgamation for another six months.
September 29, 2015	The Joint Shareholders’ Meeting No. 1/2015 between BECL and BMCL resolved to approve the extension of time for the amalgamation for another six months.
November 5, 2015	The Boards of Directors of BECL and BMCL resolved to grant approval to propose the matter to the Joint Shareholders’ Meeting of BECL and BMCL for consideration of various issues of the new company as a result of the amalgamation.
December 28, 2015	The Joint Shareholders’ Meeting No. 2/2015 between BECL and BMCL resolved to approve various issues of the new company as a result of the amalgamation.
December 30, 2015	The amalgamation was registered with the Ministry of Commerce as Bangkok Expressway and Metro Public Company Limited, whereby the Stock Exchange of Thailand listed the Company’s ordinary shares as “BEM” securities on the Stock Exchange, which started trading on January 5, 2016.
December 30, 2015	BEM executed the Amendments to the Concession Agreements, by changing name of the contractual party with the Expressway Authority of Thailand (EXAT) and the Mass Rapid Transit Authority of Thailand (MRTA).

### Significant Changes and Developments of BECL and BMCL prior to the Amalgamation

May 26, 2015	BECL exercised its right to acquire CKP's ordinary shares for capital increase as per its shareholding proportion in the total amount of Baht 1,088,470,044.
August 11, 2015	The Board of Directors of BMCL resolved and approved to propose the matter to its shareholders' meeting for consideration and approval for execution of the connected transactions on engagement of CH. Karnchang Plc. for repair and maintenance of the civil infrastructure and M&E Equipment of the MRT Blue Line Project and the MRT Purple Line Project.
August 13, 2015	MRTA approved in principle for execution of the Concession Agreement for the MRT Purple Line Project, Contract 5, with BMCL, awaiting the Council of Ministers' resolution granting approval for MRTA to execute the Agreement with the Company.
August 20, 2015	<p>The Board of Directors of BMCL resolved to grant approval for execution of the Concession Agreement for the MRT Purple Line Project, Contract 5, with MRTA, and resolved to propose the matter to its shareholders' meeting for consideration and approval for execution of three connected transactions on engagement of CH. Karnchang Plc., as follows:</p> <ol style="list-style-type: none"> <li>1) Project management, including supply, installation of the M&amp;E Equipment, and maintenance of the civil infrastructure and M&amp;E Equipment of the MRT Purple Line Project, Contract 5, including supply and installation of equipment for improvement of the communication system of the MRT Blue Line Project;</li> <li>2) Project management for maintenance of the civil infrastructure and M&amp;E Equipment of the MRT Blue Line Project;</li> <li>3) Amendment of the Project Management Agreement with CH. Karnchang Plc., including supply and installation of the M&amp;E Equipment of the MRT Purple Line Project with the scope of additional works.</li> </ol>
October 14, 2015	The shareholders' meeting of BMCL resolved to approve execution of all three connected transactions on engagement of CH. Karnchang Plc. as proposed.
November 5, 2015	The Board of Directors resolved to grant approval for BECL to acquire 280 million shares in NECL in the total amount of Baht 154 Million.
November 5, 2015	To ensure continued train operation between the existing MRT Blue Line Project and the MRT Purple Line Project, as well as to provide facilitation to metro service users, BMCL then executed the Project Management Agreement with CH. Karnchang Plc., including supply and installation of the M&E Equipment under the Concession Agreement, Contract 5 (Bang Sue Station - Tao Poon Station, excluding stations), including supply and installation of equipment for improvement of the communication system of the MRT Blue Line Project.
November 17, 2015	BMCL entered into the Agreement for engagement of CH. Karnchang Plc. for repair and maintenance of the civil infrastructure and the M&E Equipment of the MRT Blue Line Project and the MRT Purple Line Project.
December 25, 2015	BECL made redemption of all debentures from the debenture holders under the resolution of the debenture holders' meeting which was held on June 8, 2015.

#### 1.4 Shareholding Structure of Company Group

**Chart of Shareholding Structure and the Company's Shareholding Percentage as at December 31, 2015**



**Remark :** CH. Karnchang Group comprises 1) CH. Karnchang Plc., 2) CH. Karnchang-Tokyu Construction Company Limited, 3) Mahasiri Siam Co., Ltd., and 4) CH. Karnchang Holding Co., Ltd.

##### 1.4.1 Investment in Subsidiaries, Associated Companies and Other Company

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. The Company's investment as at December 31, 2015 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
<b>Subsidiaries</b>					
Northern Bangkok Expressway Company Limited	Construction and operation of the Udon Ratthaya Expressway	6,000	5,250	99.99%	2,604
Bangkok Metro Networks Limited	Operation of the commercial development business	254	254	65.19%	166
<b>Associated Companies</b>					
CK Power Public Company Limited	Investment by holding shares in other companies (Holding Company) operating a business of electricity production and distribution	9,240	7,370	19.40%	3,223
TTW Public Company Limited	Tap water production and distribution	3,990	3,990	19.57%	4,303



Unit: Million Baht

Names of Companies	Nature of Business	Registered Capital	Paid-up Capital	Shareholding Percentage	Investment Value at Cost
<b>Other Company</b>					
Xayaburi Power Company Limited	Construction and operation of the Xayaburi Hydroelectric Power Project	26,861	12,175	7.50%	913

## (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 at December 31, 2015, 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 (Bang Pa-in - Pak Kret 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 at December 31, 2015, the Company’s shareholding in BMN was 65.19 percent of its registered capital.

BMN was established by the amalgamation of three companies, namely, BMCL Network Limited, Metro Mall Development Limited, and Triads Networks Co., Ltd. BMN accepted the transfer of all three companies’ businesses, as well as all rights, duties, assets, liabilities and staff.

BMN currently operates the business of procurement and production of advertising media of various forms in the metro stations and trains, lease of retail spaces in stations of the MRT Blue 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 9,240 million ordinary shares, at the par value of Baht 1 per share, with the paid-up capital of Baht 7,370 Million. As at December 31, 2015, the Company’s shareholding was 19.40 percent of its registered 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, operating a business of investment and development of electricity business in the Lao People’s Democratic Republic, and Xayaburi Power Company Limited; cogeneration power business, by investing in Bangpa-in Cogeneration Limited; and solar power business, by investing in Bangkhenchai Company Limited, Nakhon Ratchasima Solar Limited, Chiangrai Solar Limited, CKP Solar Limited, Vis Solis Limited, Helios Power Limited, Apollo Power Limited, and Sole Power 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 at December 31, 2015, the Company’s shareholding was 19.57 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 25 percent of its registered capital.

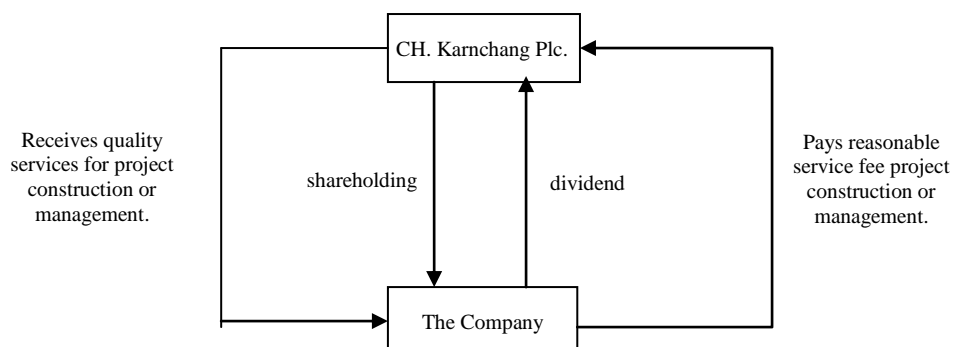
## 3. Xayaburi Power Company Limited (“XPCL”)

XPCL’s total registered capital is Baht 26,861 Million (at the exchange rate of USD 1 to Baht 34), with the paid-up capital of Baht 12,175 Million. As at December 31, 2015, the Company’s shareholding was 7.50 percent of its registered capital. XPCL’s main business is to operate the Xayaburi Hydroelectric Power Project, located on the Mekong River, with around 100 kilometers distance from Luang Prabang. The Xayaburi Hydroelectric Power Project is a run-of-river hydroelectric project, generating electricity by building a diversion weir on the Mekong River to raise the water level without water diversion from the Mekong River and without water impounding like other reservoir dams.

### 1.4.2 Relationship with Business Alliance of Major Shareholder

CH. Karnchang Plc. is the Company’s major shareholder. As at December 31, 2015, CH. Karnchang Plc. was holding 4,199,031,529 shares in the Company, representing 27.47 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 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 operation 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 interests, the Company will comply with its policy on 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 are 1) concessionaires for the expressway construction and operation, namely, the Si Rat Expressway (Second Stage Expressway) and the Udon Raththaya Expressway (Bang Pa-in - Pak Kret Expressway) and for the pending construction of the Si Rat - Outer Ring Road Expressway Project, which is expected to open for service by 2016; 2) concessionaires for operation of the MRT Blue Line Project and the MRT Purple Line Project, which are expected to open for service by 2016; and 3) commercial development business operators, pursuant to the relevant Concession Agreements. Currently, the revenue structure of the Company and its subsidiaries is set forth below.

	Operated by	Shareholding Percentage of the Company	Pro Forma Consolidated Financial Information					
			For Nine-Month Period Ended September 30, 2015		For Year Ended December 31, 2014		For Year Ended December 31, 2013	
Total revenue structure (pro forma amalgamation)			Million Baht	%	Million Baht	%	Million Baht	%
<b>Revenue from expressway business</b>			<b>8,815</b>	<b>67.3%</b>	<b>8,485</b>	<b>71.4%</b>	<b>8,040</b>	<b>58.1%</b>
Toll revenue	Company		7,606	58.0%	7,352	61.9%	6,990	50.5%
Toll revenue	Subsidiary	99.99 <sup>(1)</sup>	1,209	9.2%	1,133	9.5%	1,050	7.6%
<b>Revenue from metro business</b>			<b>2,374</b>	<b>18.1%</b>	<b>2,248</b>	<b>18.9%</b>	<b>2,106</b>	<b>15.2%</b>
Fare box revenue	Company		2,374	18.1%	2,248	18.9%	2,106	15.2%
<b>Commercial development revenue</b>			<b>549</b>	<b>4.2%</b>	<b>501</b>	<b>4.2%</b>	<b>451</b>	<b>3.3%</b>
Commercial development revenue	Company		81	0.6%	285	2.4%	256	1.8%
Commercial development revenue	Subsidiary	65.19	468	3.6%	216	1.8%	195	1.4%
<b>Gain on investments <sup>(2)</sup></b>	Company		<b>1,298</b>	<b>9.9%</b>	<b>537</b>	<b>4.5%</b>	<b>309</b>	<b>2.2%</b>
<b>Other income <sup>(3)</sup></b>	Company		<b>69</b>	<b>0.5%</b>	<b>113</b>	<b>1.0%</b>	<b>2,944 <sup>(4)</sup></b>	<b>21.3%</b>
<b>Total revenues</b>			<b>13,105</b>	<b>100%</b>	<b>11,884</b>	<b>100%</b>	<b>13,850</b>	<b>100%</b>

**Remarks:** (1) The Company (formerly BECL) acquired additional shares in NECL in November 2015, as a result, the Company's shareholding in NECL increased from 53.33 percent to 99.99 percent of its registered capital.

(2) Gain on investments includes gain on sales of investment in BMCL TTW and CKP.

(3) Other income comprises interest income, gain on fair value adjustment of investment, and flood compensation.

(4) Total gain on fair value adjustment of investment from changing status of investment amounts to Baht 2,808 Million.

### 2.1 Expressway Business

#### 2.1.1 Nature of Services

The Company and its subsidiary, i.e., NECL, constructs and operates the expressways, namely, the Si Rat Expressway (Second Stage Expressway), the Si Rat - Outer Ring Road Expressway, and the Udon Raththaya Expressway (Bang Pa-in - Pak Kret Expressway), as per the following details:

##### 1) The Si Rat Expressway (Second Stage Expressway)

The Si Rat Expressway (Second Stage Expressway) is the first large-scale construction project in Thailand on the basis of public private partnership to help alleviate the traffic congestion problems in Bangkok and its vicinity. This project is implemented on a Build Transfer and Operate (BTO) basis, namely, the Company (formerly BECL) invested in the design, construction and operation of the Si Rat Expressway (Second Stage Expressway), comprising 4 Sectors, namely, Sector A (Rama 9 - Ratchadapisek), Sector B (Phayathai - Bangkok), Sector C (Ratchadapisek - Chaeng Watthana), and Sector D (Rama 9 - Srinagarindra), covering a total distance of 38.5 kilometers. In this regard, the title to various permanent constructions pertaining to or useful for the Si Rat Expressway shall be vested in EXAT. 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 assumed the right to operate the Si Rat Expressway and the right to receive toll revenue sharing in respect of the Chalerms Mahanakorn Expressway and the Si Rat Expressway in such proportions as specified in the Second Stage Expressway Agreement for the concession period of 30 years from March 1, 1990, and the Agreement for Extension of the Second Stage Expressway (Sector D) for the concession period of 30 years from April 17, 1997.

## 2) The Si Rat - Outer Ring Road Expressway Project

The Company has assumed the Concession Agreement for Investment, Design, Construction, Operation, Service and Maintenance of the Si Rat - Outer Ring Road Expressway Project, with 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 starts from Kanjanapisek Road and connects to the Si Rat Expressway at the North of the Mo Chit 2 Bus Terminal, for a total distance of 16.7 kilometers. In this regard, the Company is responsible for investment and all operating expenses, and share returns with or provides benefits to EXAT as specified in the Agreement, for the concession period of 30 years from December 15, 2012, and with the construction period not exceeding 48 months from such date.

## 3) The Udon Ratthaya Expressway (Bang Pa-in - Pak Kret Expressway)

The Company holds shares in NECL, which engages in the business of construction and operation of the Udon Ratthaya Expressway, connecting to the Si Rat Expressway at Chaeng Watthana Road and ending at Amphoe Bang Pa-in, Phra Nakhon Si Ayutthaya Province, covering a total distance of approximately 32 kilometers. This project is implemented on a Build Transfer and Operate (BTO) 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 80r useful for the expressway shall be vested in EXAT, and EXAT is responsible to collect and deliver all tolls to NECL as specified in the Agreement, for the concession period of 30 years from September 27, 1996.

The details of the expressway network connections are as follows:

Expressway Systems	Length (kilometers)	Constructed and Operated by
1. Chalerms 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 (Prachachuen - Phayathai - Bangkhlo - Asoke) 2.2 Suburban Network (Prachachuen - Chaeng Watthana and Asoke - Srinagarindra)	38.5	Company
3. Udon Ratthaya Expressway (Bang Pa-in - Pak Kret)	32.0	NECL
4. Uttaraphimuk Elevated Way (Don Muang Tollway)	28.0	Don Muang Tollway Public Company Limited
5. Chalongsat Expressway including its Extension (Ramindra - At Narong and Ramindra - Outer Ring Road)	37.7	EXAT
6. Burapha Withi Expressway (Bang Na - Chonburi)	55.0	EXAT
7. Kanjanapisek Expressway (Bang Pli - Suksawad) and Highway No. 37 (Suksawad - Bang Khun Thien Section) including a connecting road to the Industrial Ring Road	37.8	EXAT
8. Si Rat - Outer Ring Road Expressway (under construction)	16.7	Company
<b>Total length</b>	<b>272.8</b>	

## 2.1.2 Marketing and Competition

### 2.1.2.1 Customer Characteristics and Target Customers

#### (1) Customer characteristics and target customers of the expressway business

Target customers of the Chalerm Mahanakorn Expressway and the Si Rat 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 on December 31, 2015, accounted for 97.90 percent, 1.85 percent and 0.25 percent, respectively. The traffic volume during January 1 to December 31, 2015 using the expressways may be described by areas as follows:

Expressway Systems	Average Traffic Volume (trips/day)	%
1. Chalerm Mahanakorn Expressway (First Stage Expressway) <sup>(1)</sup> (Bang Na - Din Daeng - Dao Khanong)	375,087	21.96
2. Si Rat Expressway (Second Stage Expressway)		
2.1 Urban Network (Prachachuen - Phayathai - Bangkhlo - Asoke)	323,116	18.91
2.2 Suburban Network (Prachachuen - Chaeng Watthana and Asoke - Srinagarindra)	368,544	21.57
3. Udon Ratthaya Expressway (Bang Pa-in - Pak Kret)	75,078	4.40
4. Chalong Rat Expressway (Ramindra - At Narong and Ramindra - Outer Ring Road) <sup>(1)</sup>	200,578	11.74
5. Burapha Withi Expressway (Bang Na - Chonburi) <sup>(1)</sup>	139,775	8.18
6. Kanjanapisek Expressway (Bang Pli - Suksawad) <sup>(1)</sup> and Highway No. 37 (Suksawad - Bang Khun Thien Section)	226,189	13.24
Total Traffic Volume	1,708,367	100.00

Remark: <sup>(1)</sup> Source: EXAT.

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.

### 2.1.2.2 Marketing Policy and Strategies

#### Marketing Strategies

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.

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 price factor.

In May 2014, the Company opened for service the Asoke 3 Toll Plaza extension to connect between Sector D of the Si Rat Expressway (Asoke - Srinagarindra) and Section C of Chaturathit Road. As a result, there are four more toll booths at Asoke 3 Toll Plaza to accommodate vehicles coming from Section C of Chaturathit Road. This helps alleviate the traffic problem and allow motorists coming from the Victory Monument, Sri Ayutthaya Road, Ratchaprarop Road, Phetchaburi Road and Din Daeng Road to avoid traffic congestions during rush hour by using Chaturathit Road to enter the Si Rat Expressway for further traveling to Suvarnabhumi Airport, Motorway or to pass through the Chalong Rat Expressway to exit at Lat Phrao Road and Ram Inthra Road conveniently and rapidly.

In addition, EXAT improved the on- and off-ramps of the Chalerm Mahanakorn Expressway (First Stage Expressway) and the old railway around At Narong Interchange (At Narong 3) as an alternative route for motorists coming from Old Railway Road and Sanphawut Road, as well as to mitigate the traffic problem in adjacent areas. At Narong 3 Toll Plaza was opened for service in October 2014.

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

#### **1) Expressway Route and Network for Service (Products)**

1. 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.
2. 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.
3. 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 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 congestions at the front of the toll plazas.
4. 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.
5. 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.

6. 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 and various public relations media to ensure that customers, as the expressway users, would travel more conveniently and rapidly.

## 2) Toll Rates (Price)

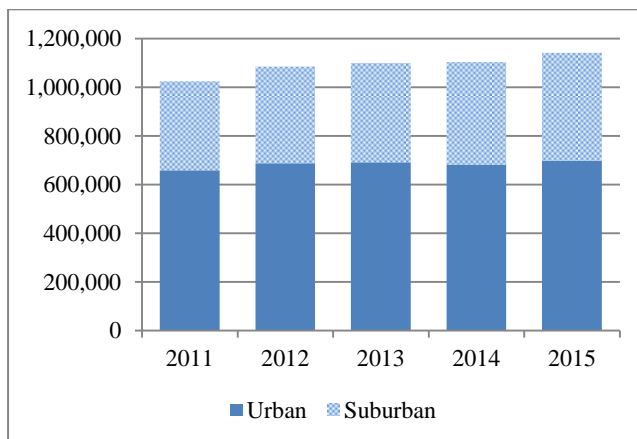
1. Toll rates are agreed upon and specified in the Agreements, including the calculation for revisions of toll rates ahead of time. It is mutually agreed that the rates are considered reasonable and based on the feasibility study for investment of each Project. Under the Second Stage Expressway Agreement 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.
2. 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 Rattaya Expressway, which the Company, together with EXAT, continued to provide discount which has been extended until December 31, 2016.

## 3) Distribution Channels (Place)

Traffic volume in the Chalerm Mahanakorn Expressway (First Stage Expressway), the Si Rat Expressway (Second Stage Expressway) and the Udon Rattaya Expressway (Bang Pa-in - Pak Kret Expressway) in 2015 may be categorized by urban and suburban, which equals 61:39.

Average Daily Traffic Volume for Urban and Suburban  
(The First and Second Stage Expressway Systems and the Bang Pa-in - Pak Kret Expressway)

(Unit: Trips/Day)



	Urban	Suburban	Total
2011	658,276	366,317	1,024,593
2012	688,139	396,626	1,084,765
2013	691,333	408,318	1,099,651
2014	682,816	420,746	1,103,562
2015	698,203	443,622	1,141,825

## 1. Payment of Tolls

- 1.1 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, both urban and suburban. Expressway users shall pay tolls at the on-ramps of toll plazas, totaling 48 locations, 18 toll plazas of the Chalerm Mahanakorn Expressway (e.g., Din Daeng, Bang Na, Dao Khanong, Sukhumvit, Rama 4 Toll Plazas, etc.) and 30 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 the Electronic Toll Collection system (Easy Pass).
- 1.2 Users of the Udon Rathaya 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, and tolls must be paid in cash only.

## 2. 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 hour, as well as accommodating the increasing traffic volume in the future.

## 4) Sales Promotion and Public Relations (Promotion)

The Company provides 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 2015, the Company provided discount at the connection from the Chalong Rat Expressway to the Chalerm Mahanakorn Expressway at At Narong 1 Toll Plaza only on the route to Bang Na, including the Udon Rathaya Expressway of the subsidiary, which continued to provide discount 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, which demonstrated our positive image and relationship with motorists under the theme that we provide the best services to customers throughout the routes.

The Company, as a private company that provides the expressway services, responds to the government policy to promote the "No Phone While Driving" and "No Drunk Driving" campaigns through the "Drive Safety" activities, as well as raising an awareness of energy concerns in traveling. The Company also implemented public relations to convince target customers of the convenient, rapid, economical and safe usage of the expressways; various quality services on the expressways; and various sales promotion of the Company, such as, special activities for lucky motorists, discount on tolls, connections between the expressways and various routes to facilitate motorists.

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](http://www.bemplc.co.th), as well as social media ([www.facebook.com/bangkokexpresswayandmetro](https://www.facebook.com/bangkokexpresswayandmetro)), including Si Rat 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.



### **2.1.2.3 Industrial Outlook and Competition**

In 2015, Thailand sustained an economic slowdown in all industrial sectors, particularly the automobile industry. Despite the overall car sales decrease as compared with that of 2014, the sales figures in November-December 2015 alone were rising as compared with that in the same period of the previous year. This was the first growth over the past 31 months thanks to the launch of new car models with special offers to attract consumers to buy new cars before price increases under the new excise tax structure, effective from January 1, 2016. However, the overall car sales in 2015 decreased as compared with that of 2014, which would affect the traffic volume on the expressways. According to the information of the Department of Land Transport, the number of new vehicles registered in Bangkok in 2015 was 388,057 vehicles, lower than 425,033 vehicles in the same period of 2014, thereby bringing the cumulative number of vehicles in Bangkok at the end of 2015 to a total of 5,536,477 vehicles. Furthermore, despite the fact that the growing number of newly registered vehicles this year was less than that of the previous year, and when compared with the limited road space in Bangkok for a total distance of only 5,400 - 5,500 kilometers, the available capacity to accommodate the volume of vehicles in Bangkok is lower.

In view of the indirect competition through other public transport systems, despite the services of the Bangkok Mass Transit System of the Bangkok Metropolitan Administration (BTS), and the metro of MRTA, the volume of vehicles using the expressways did not reduce because the majority of customers of these transportation systems previously used the public transport systems and they are in a different group to those using the expressway systems.

## **2.1.3 Procurement of Products and Services**

### **2.1.3.1 Nature of Procurement of Products**

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 feasibility study and submitted its proposals for investment in projects with appropriate return 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 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.

### **2.1.3.2 Environmental Impact**

The Company (formerly BECL) and its subsidiary have been environmentally responsible in operating its expressway business, and will continue to adhere to the practices of BECL and its subsidiary for the expressway business with the environmental responsibility which can be summarized as follows:

In the construction of the expressways, BECL and its subsidiary 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. BECL and the subsidiary implemented the measures and procedures as appropriate for the construction carried out in the urban areas with high populations. In so doing, BECL 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, BECL had no records of committing any environment-related offenses.

Even during the course of the current operation of the expressway systems, BECL remained concerned about the quality of life of staff, motorists and communities surrounding the expressways. In addition, since 2008, BECL improved its internal procedures to conform to the environmental requirements to apply for the Certificate of ISO 14001 : 2004 Environmental Management System, and BECL eventually obtained such certification from SGS (Thailand) Limited on November 14, 2008, and continued to review for renewal of the certificate of such Environmental Management System, with the commitment to ensuring the environmental management in line with the following guidelines:

1. 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;
2. To instill and encourage our staff with an awareness of efficient use of energy and natural resources;
3. To comply with the environment-related laws and regulations;
4. To review the purposes and goals for continued improvement of the environmental management system;
5. To communicate our environmental policy to the public and all parties concerned.

In 2015, BECL continued to maintain the ISO 14001 : 2004 Environmental Management System, by following up possible environmental issues, as well as optimizing the use of natural resources through its continued energy management measures. BECL conducted a study and test on the use of LED technology to replace the existing lighting on roads at the distance of approximately 10 kilometers which could help save energy up to 15 percent, as compared with high pressure sodium lamps, and the lighting around toll plazas which could help save energy up to 15 percent, whereby the Company did change to use more efficient lamps on the expressways and around toll plazas, as follows:

1. The existing high pressure sodium lamps on the Si Rat Expressway, Sectors A, B, and C, were replaced by more efficient high pressure sodium lamps, covering a distance of approximately 29 kilometers, to ensure more brightness and save energy up to 20 percent. In 2016, the Company will expand the lamp replacement to the main road of the Si Rat Expressway, Sector D, and on- and off-ramps of the Si Rat Expressway.
2. Mercury vapor lamps were replaced by LED lamps at every toll plaza, resulting in greater brightness than the existing lamps, which could help reduce energy up to 70 percent and minimize utilization of mercury.

With respect to the safety management, BECL 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. BECL applied such study results as follows:

- (a) 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.
- (b) More Easy Pass lanes were added in response to the increased traffic volume in the Easy Pass lanes. After EXAT's policy on cancellation of the Easy Pass card deposit, the use of Easy Pass service has increased, which necessitates more Easy Pass lanes to accommodate the increased traffic volume, and as a result, motorists can save their commute time and fuels.
- (c) Easy Pass lanes at Asoke Toll Plaza 4, Prachachuen Toll Plazas (inbound) and (outbound), were relocated to the farthest right lane for motorists to more efficiently and rapidly access the Easy Pass lanes.
- (d) Traffic report and Easy Pass signboards were improved to provide suggestions to expressway motorists for convenient and rapid passage through the Easy Pass lanes.
- (e) Easy Pass lanes at Asoke Toll Plazas 1, 3 and Prachachuen Toll Plaza (outbound) were improved as fast lanes to accommodate more rapid passage and minimize slow traffic in front of the Easy Pass lanes.

In addition, BECL continued to provide training for staff and executives on know-how and techniques for environmental management in accordance with the ISO 14001 : 2004 Environmental Management System, as well as various activities to raise an awareness of environmental protection in the organization and social contributions in association with the communities nearby.

### 2.1.3.3 Insurance

Insurance Policy	Coverage Value	Coverage
Property Damage, Machinery Breakdown, Business Interruption	USD 500,000,000	Insured property: Assets used in business operations of the Si Rat Expressway Coverage period: January 1, 2015 - December 31, 2015
Property Damage, Machinery Breakdown, Business Interruption	USD 500,000,000	Insured property: Assets used in business operations of the Udon Raththaya Expressway Coverage period: January 1, 2015 - December 31, 2015
Public Liability Insurance	Baht 500,000,000	Insured property: Assets used in business operations of the Si Rat Expressway Coverage period: January 1, 2015 - December 31, 2015
Public Liability Insurance	Baht 500,000,000	Insured property: Assets used in business operations of the Udon Raththaya Expressway Coverage period: January 1, 2015 - December 31, 2015

### 2.1.4 Works Pending Delivery

#### The Construction of the Si Rat - Outer Ring Road Expressway Project

The Company started the construction since December 15, 2012, for the construction period of not exceeding 48 months, with the project value of Baht 25,491 Million. As at December 31, 2015, the construction progressed approximately 85.37 percent as planned. It is expected to open for service in 2016.

## 2.2 Metro Business

The Company has been granted concessions for two mass rapid transit rail system projects from MRTA, as per the following details:

### (1) The M.R.T. Chaloem Ratchamongkhon Line (Blue Line) (Hua Lamphong - Bang Sue) ("MRT Blue Line Project")

The Company has operated the MRT Blue Line Project from Hua Lamphong Station – Bang Sue Station, with the total distance of 20 kilometers, totaling 18 stations. The Company has the exclusive right to collect fare box revenue and undertake activities and commercial development, including advertising, leasing space and telecommunications services in the metro stations and in the trains for a period of 25 years from July 2, 2004 to July 1, 2029. Under such Agreement, the Company is obliged to make payment of remuneration from fares and commercial development to MRTA at the rates as mentioned in the Agreement. Currently, there are a total of 19 trains in service every day without holiday from 6.00 hours - 24.00 hours.

(2) **The MRT Purple Line Project, Bang Yai-Rat Burana, Bang Yai-Bang Sue Section (Klong Bang Phai Station-Tao Poon Station) (“MRT Purple Line Project”), Contract 4**

The Company has operated the MRT Purple Line Project from Klong Bang Phai Station - Tao Poon Station, with the total distance of 22 kilometers, totaling 16 stations, on a PPP Gross Cost (ATO) basis. 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 repayment to the Company in the form of service fee for the O&M Services and the M&E Systems throughout the concession period of 30 years from September 4, 2013, the date of execution of the Agreement. Currently, the project is underway and expected to open for service by 2016, with Tao Poon Station as the interchange station for both projects.

Projects	MRT Blue Line Project (Hua Lamphong Station – Bang Sue Station)	MRT Purple Line Project (Klong Bang Phai Station – Tao Poon Station)
Concession Type	PPP Net Cost	PPP Gross Cost
Concession Period	25 years (2004-2029)	30 years (2013-2043)
Number of Stations	18 stations (underground metro project throughout the route)	16 stations (elevated railway system throughout the route)
Distance	20 kilometers	22 kilometers
Parking Buildings	11 parking buildings and areas	4 parking buildings

On October 28, 2014, the Council of Ministers resolved to grant approval for implementation under Section 16 of the Private Participation Act by negotiating directly with the Company (formerly BMCL) for the MRT Purple Line Project, Contract 5, on a PPP Gross Cost basis. MRTA proceeded under the procedures of the Private Participation Act and established a committee for consideration and selection of a private sector to participate in state undertaking, as well as entered into negotiations and other undertakings relating to the project. At present, the draft Concession Agreement, Contract 5, is in the process of consideration and review of the contract term for seeking further approval of the Council of Ministers.

Should the Council of Ministers approve such draft Concession Agreement, Contract 5, the Company will operate the MRT Purple Line Project, Contract 5, which will be opened for service between Tao Poon Station – Bang Sue Station, with the total distance of 1.2 kilometers, totaling 1 station, on a PPP Gross Cost (ATO) basis, divided into Phase 1: design and construction, and Phase 2: operation and maintenance services.

## 2.2.1 Nature of Services

The Company’s revenue from operation service can be divided into two categories, comprising revenue from fares and revenue from O&M services.

### 2.2.1.1 Revenue from Fares

Pursuant to the Agreement for the MRT Blue Line Project between the Company and MRTA, the Company (formerly BMCL) has the exclusive right to operate the train and collect fare box revenue and undertake commercial development for a period of 25 years from July 2, 2004, which was the date MRTA issued the Notice of No Objection to commencement of revenue service. 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, 2014, which will remain in force until July 2, 2016.

#### **2.2.1.2 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 (Klong Bang Yai Station – Tao Poon Station), Phase 2 (for a period of approximately 27 years). It is expected to start generating revenue from such services in 2016.

### **2.2.2 Marketing and Competition**

#### **2.2.2.1 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.

#### **2.2.2.2 Marketing Policy and Strategies**

##### **(1) Service and Product Strategies**

##### **(1.1) Creative and Convenient Services for MRT Passengers**

At present, the MRT route starts from Hua Lamphong Station and ends at Bang Sue Station, covering a total distance of 20 kilometers, passing through central business districts (CBD), residential areas and connecting with other mass rapid transit systems which may increase the number of passengers, e.g., connection with the Green Line (BTS) at Chatuchak Park Station, connection with Airport Rail Link at Phetchaburi Station heading for Suvarnabhumi Airport, new connection with the MRT Purple Line Project at Tao Poon Station during 2016-2017, and connections with Hua Lamphong and Bang Sue Railway Stations. Other connections between the metro stations and four buildings currently include 1) Chamchuri Square (residential, office and edutainment complex) at Sam Yan Station; 2) Union Mall at Phahon Yothin Station; 3) Interchange 21 Tower (office building) and Terminal 21 Tower (shopping center, hotel, office and residential building) at Sukhumvit Station; and 4) Central Plaza Grand Rama 9 at Phra Rama 9 Station, with a new connection with G Tower which is under construction.

Traveling behavior of service users mostly accounts for work, followed by schools, and they usually travel during rush hour, while other purposes account for off-peak journeys with potential higher number of trips. The Company thus strategically increases the number of off-peak journeys, which can be handled by the currently available capacity, and promotes more journeys by passengers using the metro cards in order to increase revenues and the number of passengers. This strategy has been continuously implemented since 2013 in alliance with its partners along the routes by way of discounts or special benefits for metro card issuance or top-up, and information services by partners on highlighted events and destinations for the MRT passengers, e.g., Central Plaza Grand Rama 9, Queen Sirikit National Convention Center, Terminal 21,



Esplanade, etc.

(1.2) 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 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:

- (1.2.1) 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.
- (1.2.2) 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.
- (1.2.3) Fast: The Company keeps the average train speed aligned with the timetable in response to passengers’ needs during different periods.
- (1.2.4) Reliability: The Company maintains the trains and signaling systems in good conditions without any impact on its services.
- (1.2.5) Punctuality: The Company keeps the timetable and stop time at every station punctual with the least possible deviations.

(1.3) 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 service. These arrangements include, for example, issuance of special-sized metro cards, and co-branded cards for financial transactions and MRT services in alliance with financial institutions, namely, KASIKORNBANK Public Company Limited and Siam Commercial Bank Public Company Limited, including Chulalongkorn University, Chulalongkorn Hospital, and other institutions or agencies.

(2) **Price Strategy**

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, which are in line with the fare collection by other mass rapid transit systems. The fare rates are adjusted in accordance with the relevant Concession Agreements. In addition, the Company provides special discounts to those organizations or agencies that purchase metro cards in the quantity as specified by the Company.

(3) **Marketing Promotion Strategies**

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:

- (3.1) 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 congestions and minimize global warming.
- (3.2) To accept credit card payments for passengers' convenience, collaborate with leading banks, e.g., Citibank for 10% cash back, and KTC for 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.
- (3.3) 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.
- (3.4) To create the Customer Relations Management (CRM) and build a network compatible with the CRM process, which will serve as a central mechanism for loyalty marketing, focusing on efficient and effective response to ensure customers' satisfaction and creation of the MRT Club community for relationship building using social network and communication channels in the MRT stations to offer special benefits, organize marketing activities and co-promotion in alliance with partners on the win-win strategy through MRT Club memberships.
- (3.5) 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:
  - Collaboration with AIS to provide discounts for the MRT service in the "Safe Journey with MRT" campaign.
  - Collaboration with WeChat to provide discounts for the MRT service when purchasing or topping up metro cards with a minimum value of Baht 300.
  - Collaboration with K-Mobile Banking to provide Baht 30 discount to any MRT customers using K-Mobile Banking Application or K-Cyber Banking to purchase or top up metro cards with a minimum value of Baht 300.
  - Collaboration with KTC to use KTC reward points for metro card value top-up or issuance.
  - Collaboration with Major Cineplex Group, SF Cinema and GTH for special movie tickets or movie ticket discounts, and collaboration with Scenario for theatre tickets to MRT Club members or metro card purchasers.

**(4) Marketing Communication Strategies**

- (4.1) 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., posters, J-flags, standees, leaflets, digital media, social PR media, etc., to provide service users with journey information in the MRT system.
- (4.2) To publicize news and information to new customers at exhibition

booths, public relations events to introduce the MRT service to customers focusing on punctuality, convenience, fast journey, family time-saving, and definite timetable, in order to attract new customer groups to try the service.

(4.3) To create destinations via regular communication, public relations and journey information along the MRT routes, and post on the Company's website route maps with attractive destinations, e.g., office buildings, schools, hotels, shopping centers, tourist attractions and other landmarks, as well as convenient and rapid links to other mass rapid transit systems, in the form of MRT Directory, which includes suggestions from partners or organizers for using the MRT services.

(4.4) To assure people of the safety of the MRT system through television, radio and other media, and organize safety-related activities at various venues, e.g., schools, office buildings, to present the safety of the MRT system to people for their understanding and confidence in the services.

**(5) Development Strategy**

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.

**(6) Distribution Strategies and Channels**

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.

**2.2.2.3 Industrial Outlook and Competition**

**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, metro, micro buses, taxis. The traffic problem in Bangkok has intensified due to the population density in urban areas and the rising travel demand of people, a major problem which is not different from the problem in other highly populated capital cities around the World. The government has a policy focusing on developing various public mass transit networks to resolve traffic problems and overpopulation in order to accommodate the economic growth of the country.

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

**(1) 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, together with the inadequacy of the existing transport systems as well as the service quality and safety, has also caused personal cars to become essential and convenient for traveling, despite the limited and inadequate expansion of traffic area in Bangkok to accommodate an ongoing increase in volume of vehicles every year.

**(2) Public Transport System**

Based on the daily average passenger volume traveling by a variety of land transport systems, public bus service is the most popular choice, although the number of public bus service users is likely to continuously decrease;

while the volume of passengers in the mass rapid transit rail system has substantially increased, resulting from traffic congestions, particularly in rush hour, and increased population in Bangkok and its vicinity, including the growth of real estate projects surrounding the metro routes, and as such, there is a growing demand for using the metro system accordingly.

## **2.1 Public Bus Service**

At present, there are various types of public buses for service at different service rates, but currently, the number of public buses in service in Bangkok is inadequate. As a result of ongoing traffic congestion on roads, especially rush hours in the morning from 6:30 to 8:30 hours, and in the evening from 16:30 to 18:30 hours, traveling has become inefficient and time-consuming. In addition, passengers are also affected by safety issues and by pollution caused by carbon emissions. These negative factors have likely caused the volume of BMTA passengers to decline and change to use the mass rapid transit rail service more.

## **2.2 Trains**

In the past, the State Railway of Thailand (“SRT”) provided train service in Bangkok at a special low rate in order to serve low-paid people to travel from the outskirts of Bangkok to downtown. However, such system is rather inconvenient and unsafe in terms of train condition, non-air conditioning, limited routes which do not cover the entire city, and as a result, the growth rate of train service is declining. In this regard, the SRT’s train service is not considered as the Company’s direct competitor due to different service routes, as the SRT aims to provide service to suburban areas.

## **2.3 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, has a total distance of 36.9 kilometers, with 34 stations, and as such, traveling by BTS was the convenient alternative for commuters. The extension of Silom Line, the growth of population, real estate development around the routes, and connection with the MRT system, all of which caused an increase in service user volume.

## **2.4 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 systems, carried out and operated by 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 in two modes, namely, Express Line and City Line. From April 14, 2014, Phaya Thai Express - Suvarnabhumi Airport Express (Express Line) had been temporarily out of service.

The transport systems which are considered the direct competitors are personal cars, public buses, micro buses, public vans and taxis. In the past, fare rates of the public transport services, especially normal or air-conditioned public buses, did not change much, despite the fact that oil prices were likely to reduce, which affected the public transport service users, not to mention the impact from traffic congestion, air and noise pollution, and potential accidents. As such, the mass rapid transit rail

system is 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 usage of the national resources.

#### **Industrial Outlook and Government Policy**

Thailand's economic outlook in 2015 grew at approximately 2.9 percent, which was improved from 0.9 percent in 2014. In 2016, it is expected to grow in the range between 3.0 - 4.0 percent, significantly resulting from acceleration of disbursements and investments by the government sector, and the economic stimulus measures (Source: Office of the National Economic and Social Development Board), in particular in the first half of 2016, which would be the right time for the government to urgently push forward investment projects as the government machine for driving the national economy, whether they be those projects which have been concluded and approved, such as, Dual Track Rail System Development Project, Jira Junction – Khon Kaen Section, and Dual Track Rail System Development Project, Chachoengsao – Khlong Sib Khao – Kaeng Khoi, etc., and new projects under urgent consideration for continuity, and those completed projects according to schedule, so as to strengthen the economy and social interests.

The government prioritizes its strategic plans for transportation development, particularly investment projects in the metro system, to resolve traffic problems in Bangkok and its vicinity, and as such, speeds up the bidding process for these projects by establishing the Public Private Partnership (PPP) Policy Committee and setting up a PPP Fast Track team as a one-stop consideration process for major investment projects in order to reduce bureaucratic red tape, which would take up to one year and 10 months to consider taking actions prior to procurement/engagement or opening for bidding process to private sector, to merely nine months. PPP Fast Track projects would focus on infrastructure investments in accordance with Thailand's PPP Strategic Plan 2015-2019, which covers five megaprojects for transportation infrastructure in the initial phase, worth Baht 3.4 Billion. The first three metro projects under the PPP Fast Track are the MRT Blue Line Extension, the MRT Pink Line and the MRT Yellow Line Projects (by resolutions of the Public Private Partnership (PPP) Policy Committee's meeting No. 6/2015).

<b>PPP Fast Track Projects (Phase 1)</b>	<b>Amount (Million Baht)</b>
MRT Pink Line Project (Khae Rai – Min Buri)	56,690
MRT Blue Line Project (Extension) (Hua Lamphong – Bang Khae and Bang Sue – Tha Phra)	82,600
MRT Yellow Line (Lat Phrao – Samrong)	54,644
Intercity Motorway Project (Bang Pa-in – Nakhon Ratchasima)	84,600
Intercity Motorway Project (Bang Yai – Kanchanaburi)	55,620

On December 1, 2015, the Council of Ministers (Cabinet) resolved to approve an urgent transportation action plan for 2016 to mobilize Thailand's infrastructure investment, worth Baht 1.79 Trillion, comprising:

Projects		Budget (Million Baht)
Air Transport	Suvarnabhumi Airport Phase II	49,476
Dual Track (Meter Gauge)	Mab Kabao – Jira Junction	29,853
	Nakhon Pathom – Hua Hin	20,063
	Prachuab Kirikan – Chumpon	17,290
	Lop Buri – Pak Nam Pho	24,918
Dual Track (Standard Gauge)	Bangkok – Nong Khai – Kaeng Koi – Map Ta Phut	369,148
	Bangkok – Phitsanulok – Chiang Mai	449,473
	Bangkok – Hua Hin	94,673
	Bangkok – Rayong	155,774
Mass Rapid Transit	<b>MRT Orange Line: Thailand Cultural Centre – Min Buri</b>	<b>110,116</b>
	<b>MRT Pink Line: Khae Rai – Min Buri</b>	<b>56,690</b>
	<b>MRT Yellow Line: Lat Phrao – Samrong</b>	<b>54,644</b>
	<b>SRT Red Line: Bang Sue – Phaya Thai – Makkasan – Hua Mak and Bang Sue – Hua Lamphong</b>	<b>44,157</b>
	<b>MRT Purple Line (Extension): Tao Poon – Rat Burana</b>	<b>131,003</b>
Motorway	Pattaya – Map Ta Phut	20,200
	Bang Pa-in – Saraburi – Nakhon Ratchasima	84,600
	Bang Yai – Ban Pong – Kanchanaburi	55,620
Maritime Transport	Coastal Port Development (Terminal A), Laem Chabang Port	1,864
	Single Rail Transfer Operator (SRTO) Phase 1, Laem Chabang Port	2,031



Despite the government's policy to maintain such measures relating to free public bus and train services of the State Railway of Thailand, given the growing traffic congestion, some people choose the MRT service for its convenience, rapidity, reliability and punctuality. Price competition between the MRT system and public bus and train services did not have a negative effect on the Company's revenue. On the other hand, free public bus and train services help cause the costs of feeder systems to the MRT service to be lower and open up more opportunity to use the MRT service.

Sources:

- Analysis of Kasikorn Research Center
- <https://www.kasikornresearch.com/th/k-econanalysis/pages/ViewSummary.aspx>
- The construction industry became active after the government's utilization of money for economic stimulation from <http://www.naewna.com/business/160844>
- Ministry of Transport
- [http://www.efinancethai.com/LastestNews/index.aspx?ref=A&id=YMjirWNgu WE=&year=2015&month=11&lang=T](http://www.efinancethai.com/LastestNews/index.aspx?ref=A&id=YMjirWNguWE=&year=2015&month=11&lang=T)
- Bangkokbiznews on December 14, 2015

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**Real estate development around the MRT routes**

At present, travel by the mass rapid transit system, particularly the MRT system, is convenient, fast and safe for commuters in Bangkok. The continued change of commuting behaviors to use the MRT system, as well as selection of residence along the routes, is the factor accelerating the rapid growth of real estate development in Bangkok, particularly real estate projects around the routes, which remain positive for the MRT service, taking into account the opening of new real estate development around the MRT routes, especially 6 stations passing across Asoke-Ratchada Road, e.g., Ratchadaphisek Station, Sutthisan Station, Huai Khwang Station, Phra Ram 9 Station, Phetchaburi Station and Sukhumvit Station.

The fast growing real estate projects around the Ratchada – Phra Ram 9 areas are substantial thanks to the new emerging large-scale office buildings on Phra Ram 9 area through to Ratchadaphisek Road. These projects include “The Super Tower” investment project, ASEAN’s highest tower by Grand Canal Land Co., Ltd., the Stock Exchange of Thailand’s office relocation to this vicinity in late 2015, including the opening of Suan Lum Night Bazaar Ratchadaphisek Project which comprises shopping center, hotel, residential apartment, food shops and supermarket, as well as other new condominium projects. All these projects largely reflect the availability of more convenient transport systems in the areas. This is also true of the convenient, fast and safe MRT services, which evidently help speed up the real estate project growth, let alone the fact that such areas are located between the inner city and the eastern outskirt of Bangkok, where inbound and outbound journeys are available and very convenient. In the future, the MRT Orange Line Project (Thailand Cultural Centre – Min Buri) will pass this vicinity and connect with the MRT Blue Line Project at Thailand Cultural Centre Station. These factors will support the potential growth of the Ratchada – Phra Ram 9 areas as a new business hub, which is conveniently accessible by the mass rapid transit system network in the near future.

### Progress of Development of the Mass Rapid Transit Systems under the Government Policy

Project	Current Status of Project
<b>SRT Dark Red Line</b> <b>(North - South)</b> Suburban railway system, divided into 4 phases, covering a total distance of 80.5 kilometers: <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	<b>Bang Sue - Rang Sit, with a distance of 26 kilometers</b> <ul style="list-style-type: none"> <li>- SRT is proceeding with the following: <ul style="list-style-type: none"> <li><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 &amp; Construction Public Company Limited and Unique Engineering and Construction Public Company Limited) on January 18, 2013. The construction is approximately 36.86% completed (in December 2015);</li> <li><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. The construction is approximately 55% completed (in December 2015);</li> <li><u>Contract 3:</u> M&amp;E System, including supply of carriages</li> </ul> </li> <li>- On January 18, 2016, SRT has proposed to the Meeting of the State Enterprise Policy Office (SEPO) that it will operate this project by itself for the first five years.</li> </ul>
<b>SRT Light Red Line</b> <b>(West - East)</b> SRT's suburban railway system, Bang Sue - Taling Chan, Bang Sue - Rangsit, Taling Chan - Salaya, and Bang Sue - Makkasan - Hua Mak, covering a total distance of approximately 48 kilometers	<b>Bang Sue - Taling Chan, with a distance of 15 kilometers</b> <ul style="list-style-type: none"> <li>- SRT engaged Unique - Chun Wo Joint Venture to carry out the construction. The construction is 100% completed.</li> <li>- The project was opened for trial run during September 8 to November 30, 2012 for four trips per day (round trip) by diesel railcars in order to inspect the rail condition and systems relating to train operation.</li> <li>- It was opened for temporary service from December 5, 2012.</li> </ul> <b>Bang Sue - Phaya Thai - Makkasan - Hua Mak, with a distance of 19 kilometers</b> <ul style="list-style-type: none"> <li>- On October 21, 2014, the Council of Ministers resolved to approve the project, and it is expected that the bidding process for contractor will start in 2016.</li> </ul>
<b>MRT Purple Line</b> <b>(Bang Yai - Bang Sue)</b>	<b>Bang Yai - Bang Sue, with a distance of 23 kilometers</b> The civil work construction of Contracts 1-3 and 6 is approximately 100% completed (in December 2015), namely, <ul style="list-style-type: none"> <li><u>Contract 1:</u> Civil Works (Tao Poon - Nonthaburi) operated by CKTC;</li> <li><u>Contract 2:</u> Civil Works (Phra Nang Klao - Bang Yai) operated by STEC;</li> <li><u>Contract 3:</u> Civil Works (Depot and Park &amp; Ride Facilities) operated by PAR JV;</li> <li><u>Contract 4:</u> M&amp;E Systems and O&amp;M, on September 4, 2013, MRTA executed the Contract with BMCL. The construction is approximately 88.00% completed (in December 2015);</li> <li><u>Contract 5:</u> Railway M&amp;E Works Tao Poon - Bang Sue Section. On July 6, 2015, BMCL submitted its proposal for the</li> </ul>

Project	Current Status of Project
	<p>Concession Agreement, Contract 5, and currently, it is in the process of consideration and review of the contract term.</p> <p><u>Contract 6:</u> Trackwork, MRTA executed the agreement for civil work construction, Contract 6 (Trackwork) with Italian-Thai Development Public Company Limited on October 4, 2012.</p>
MRT Blue Line	<p><b>Bang Sue - Tha Phra and Hua Lamphong - Bang Khae, with a distance of 27 kilometers</b></p> <ul style="list-style-type: none"> <li>- The construction of the civil work by the contractor progressed approximately 71%, (in December 2015).</li> <li>- On December 2, 2014, the Committee under Section 13 requested BMCL to propose its technical plan to ensure connected transport for the greatest convenience of passengers.</li> <li>- On November 11, 2015, the Public Private Partnership (PPP) Policy Committee resolved to grant approval for the project to be incorporated in the PPP Fast Track measures, the first phase, so as to expedite the process.</li> </ul> <p><b>Bang Khae - Phutthamonthon Sai 4 (with a distance of 8 kilometers)</b></p> <ul style="list-style-type: none"> <li>- On December 25, 2015, the Ministry of Transport requested MRTA to review/update the study report.</li> </ul>
MRT Green Line	<p><b>Mo Chit - Saphan Mai - Khu Kot, with a distance of 18.4 kilometers</b></p> <ul style="list-style-type: none"> <li>- The construction of the civil works by the contractor progressed approximately 3% (in December 2015).</li> <li>- MRTA executed the civil work contracts, Contracts 1-4, on April 3, 2015, as follows:</li> </ul> <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 &amp; 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> <p><b>Bearing - Samut Prakan, with a distance of 12.8 kilometers</b></p> <ul style="list-style-type: none"> <li>- The construction of the civil works by the contractor progressed approximately 75% (in December 2015).</li> <li>- Contract 1: Elevated Structure and Contract 2: Trackwork operated by CH. Karnchang Public Company Limited.</li> <li>- It is pending the negotiation with BTSC as train operation contractor to ensure the uninterrupted commute. It is expected to</li> </ul>

Project	Current Status of Project
	open for service in 2018.
<b>MRT Orange Line</b>	<p><b>Thailand Cultural Centre – Min Buri, with a distance of 20 kilometers</b></p> <ul style="list-style-type: none"> <li>- On December 8, 2015, the Council of Ministers resolved to approve the implementation of the MRT Orange Line Project, Thailand Cultural Centre – Min Buri, which was required to be proposed to the PPP Policy Committee’s Meeting, and the bidding process for contractor will start within six months.</li> </ul> <p><b>Taling Chan - Thailand Cultural Centre, with a distance of 17.5 kilometers</b></p> <ul style="list-style-type: none"> <li>- The Meeting of the Office of the Commission for Management of Land Traffic (OCMLT) resolved to use the existing route in construction of Thailand Cultural Centre - Min Buri Section, which has passed the environmental impact analysis (EIA) study.</li> </ul>
<b>MRT Yellow Line</b>	<ul style="list-style-type: none"> <li>- On November 11, 2015, the Public Private Partnership (PPP) Policy Committee resolved to grant approval for the project to be incorporated in the PPP Fast Track measures, the first phase, so as to expedite the Council of Ministers’ consideration, and the bidding process will start by 2016.</li> </ul>
<b>MRT Pink Line</b>	<ul style="list-style-type: none"> <li>- On November 11, 2015, the Public Private Partnership (PPP) Policy Committee resolved to grant approval for the project to be incorporated in the PPP Fast Track measures, the first phase, so as to expedite the Council of Ministers’ consideration, and the bidding process will start by 2016.</li> </ul>
<b>Red Line (Airport Link)</b>	<ul style="list-style-type: none"> <li>- On December 25, 2015, the Council of Ministers resolved to approve the royal decree on land expropriation in Ratchathewi District, Thung Phaya Thai Subdistrict, and Sam Sen Nai Subdistrict, for implementation of the Suvarnabhumi Airport Rail Link Extension, Don Mueang - Bang Sue - Phaya Thai, which has passed the environmental impact analysis (EIA) study.</li> </ul>

Sources : [www.railway.co.th](http://www.railway.co.th), [www.mrta-purpleline.com](http://www.mrta-purpleline.com), [www.bts.co.th](http://www.bts.co.th), [www.bkkmrt.com](http://www.bkkmrt.com), and other sources collected.

## 2.2.3 Procurement of Products or Services

### 2.2.3.1 Nature of Procurement of Products

The mass rapid transit system projects are awarded to the Company by 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 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. Chaloem Ratchamongkhon Line (“Blue Line”) (Hua Lamphong Station - Bang Sue Station)**

The Company engaged Joint Venture CKET as the project manager for the MRT

project (Project Manager) (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 contractor for maintaining the M&E Equipment for a period of 10 years (July 2004 to July 2014), which was extended for another 10 years (to end in July 2024).

**The MRT Purple Line Project, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section, (Khlong 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, (Khlong 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 2 of the Concession Agreement, the Company and CH. Karnchang Public Company Limited engaged MTJV (Marubeni-Toshiba Joint Venture) for supply of rolling stocks, power supply equipment, signaling system, control and communications systems, as well as maintenance service for a period of 10 years.

**2.2.3.2 Environmental Impact**

In respect of the metro business, the Company is committed to continuing its environment-related activities in accordance with ISO 14000 standards, by implementing pollution prevention and control measures, mitigation 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 energy conservation and environmental preservation in the metro business, the Company has strictly complied with the relevant laws governing energy conservation and the environment, and also adopted the Energy Management Systems - Requirements with guidance for use or ISO 50001. It has complied with the International Environmental Management System ISO 14001 since the opening of its MRT service, and organized activities for participation by and listening to stakeholders' opinions, to ensure proper understanding which will lead to sustainable development. It was for this reason that the Company received the standard management certifications as follows:

- 1) ISO 9001:2008 Quality Management System;
- 2) ISO 14001:2004 Environmental Management System;
- 3) OHSAS 18001:2007 and TIS 18001:2001 Occupational Health and Safety



#### Management Systems;

#### 4) Safety Management System from Lloyd's Register Rail.

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 that may arise during the implementation of the MRT Projects (Environmental Impact Mitigation Measures and Monitoring Program - EMP), as well as submitting reports on its compliance with such measures to the Office of Natural Resources and Environmental Policy and Planning (ONEP) for consideration twice a year. The environmental quality measurements were conducted three times, with the results of the compliance with the measures in key environmental issues as follows:

##### (1) Air Quality

The results of air quality measurement in six sensitive areas around the routes every four months showed that the total suspended particulate (TSP), particulate matter (PM10) and carbon monoxide (CO) in all such areas did not exceed normal level.

##### (2) Air Quality in MRT Stations and Trains

The results of air quality measurement every four months 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 Level of Noise and Interference at Depot Area

The results of noise measurement once a year showed that the average noise did not exceed 70 dBA, with the maximum level not exceeding 115 dBA, which met the standard requirements. The interference level at the depot area did not exceed normal levels and did not constitute a noise disturbance.

##### (4) Vibration and Noise Level in Stations

The results of vibration and noise level measurement in the MRT stations did not exceed normal levels.

##### (5) Effluent Quality

The results of effluent quality measurement in all 18 MRT stations, depot and administration building/canteen did not exceed normal levels. The wastewater treatment system could work efficiently according to its design.

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.

#### 2.2.3.3 Insurance

The Company took out insurance with local insurance companies against potential damage as appropriate to the Company's metro business, as follows:

Insurance Policy	Coverage Value	Coverage
Industrial All Risks Insurance (Administration Building)	Sum insured: Baht 366,700,000	Insured property: Administration building and canteen as well as the fenced location  Coverage period: June 1, 2015 - June 1, 2016
Public Liability Insurance (Administration)	Limited liability: Baht 10,000,000 per accident and throughout the	Insured property: Administration building and canteen as well as the fenced

Building)	coverage period	location Coverage period: June 1, 2015 - June 1, 2016
Property All Risks Insurance (Depot & Stations)	Sum insured: USD 350,000,000 for total damages per occurrence	Insured property: Depot and stations along the routes Coverage period: July 3, 2015 - July 3, 2016
Public Liability Insurance (Depot & Stations)	Limited liability: USD 40,000,000	Insured property: Depot and stations along the routes Coverage period: July 3, 2015 - July 3, 2016
Terrorism Insurance	Limited liability: USD 10,000,000	Insured property: Administrative building, depot, stations, tunnel and assets within buildings and tunnels, trackwork, rolling stocks and other assets of the underground metro system, including business interruption Coverage period: July 3, 2015 - July 3, 2016

#### 2.2.4 Works Pending Delivery

##### **The MRT Purple Line Project Agreement, Bang Yai – Rat Burana, Bang Yai – Bang Sue Section (Klong Bang Phai Station – Tao Poon Station), Contract 4: Concession for Supply of M&E Systems and O&M Services**

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, for a total period of not exceeding 1,200 days from the date of execution of the Concession Agreement (September 4, 2013) for a total value of Baht 20,011 Million, with progress at approximately 88 percent as at December 31, 2015, and it is expected to open for service by 2016.

### 2.3 Commercial Development Business

#### 2.3.1 Nature of Services

##### **Commercial Development Relating to Metro System**

In regard to commercial development revenue from the MRT Blue Line Project, the Company has operated and granted the following rights to its subsidiary, BMN:

##### 1. Procurement and/or Production of Advertising Boards

Procurement and/or production of advertising boards or media in all 18 stations and for all 19 trains (MRT metro), comprising advertising media of various forms and sizes, e.g., light boxes, sticker media, platform billboard, advertising media via the Passenger Information Display Systems (PIDs), and digital media.

##### 2. Lease of Retail Spaces in MRT Stations

Lease of retail spaces in 11 MRT stations, comprising Klong Toei Station, Queen Sirikit National Convention Centre Station, Sukhumvit Station, Phetchaburi Station, Phra Ram 9 Station, Thailand Cultural Centre Station, Ratchadaphisek Station, Lat

Phrao Station, Phahon Yothin Station, Chatuchak Park Station and Kamphaeng Phet Station, and spaces in the basement level of the Lat Phrao park and ride facility, covering the total commercial lease spaces of approximately 14,236 square meters (spaces for retail shops and sale promotions). To date, the retail shops are opened in five stations, namely, Sukhumvit Station, Phahon Yothin Station, Chatuchak Park Station, Kamphaeng Phet Station and Phra Ram 9 Station.

3. Provision of Service and Maintenance of Telecommunications System Equipment

Provision of service and maintenance of telecommunications system equipment, particularly mobile phone network, inside the metro stations and tunnels, as well as Hi-speed Internet, the Wi-Fi services, and the telecommunications signal systems in the metro stations and tunnels on 2G and 3G, to be upgraded to a 4G network signal and internet technology in the future.

Commercial Development Relating to Expressway Systems

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 lease of spaces for commercial operation, as follows:

1. 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.

2. Retail Spaces around Toll Plazas

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

3. Other Business Operations

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

**2.3.2 Marketing and Competition**

**2.3.2.1 Customer Characteristics and Target Customers**

As the commercial development in the MRT Blue Line Project comprises procurement and/or production of advertising media of various forms in the metro stations and trains, lease of retail spaces, as well as providing service and maintenance of telecommunications system equipment, with different customer characteristics and target customers varying on service types, therefore, such commercial development can separate customer characteristics and target customers, as follows:

1. Procurement and/or Production of Advertising Media of Various Forms

Procurement and/or production of advertising media of various forms serve to communicate information from product and service owner to service customers. The MRT service users mainly comprise school and college students as well as office employees. Therefore, the Company's main customer groups include the following sectors, namely, telecommunications, food and beverages, movies, beauty products, clothes and accessories, real estates, tourism, life insurance and insurance, technology products, commodities, financial institutions, etc., which are in line with the group of products and services within the public relations budget in the advertising industry business.

2. Lease of Retail Spaces in MRT Stations

Target customers are different in each station, depending on the concept of each station to match with its location, behaviors of service users who anticipate convenience, rapidity and external physical factors. Therefore, the current customers who take on lease of areas include SME entrepreneurs, up to major brand products in response to service users' lifestyle.

3. Provision of Service and Maintenance of Telecommunications System Equipment

The customer characteristics in this group are mobile phone network operators, therefore, target customers are those licensed mobile phone network operators comprising AIS, DTAC, TRUE MOVE, TOT, CAT, etc., all of which are currently the Company's customers.

As for the commercial development in the expressway systems, private entities and individuals are allowed to take on lease of spaces for various business operations, therefore, target customers are operators of such businesses, such as, advertising media producers, telecommunications system service providers, and individual customers' retail shops.

**2.3.2.2 Marketing Policy and Strategies**

**(1) Service and Product Strategies**

Commercial Development Relating to Metro System

The commercial development service is provided for facilitating and ensuring pleasant journeys for MRT service users, including people living in the areas adjacent to the MRT stations, and such commercial development service generates more revenue, as follows:

- Retail areas covering more than 25,000 square meters (including common areas), with retail shops and activity areas for almost 500 shops in 11 MRT stations, and at present, there are five MRT stations with retail areas in service, comprising Sukhumvit Station, Phahon Yothin Station, Chatuchak Park Station, Kamphaeng Phet Station, Phra Ram 9 Station, and Thailand Cultural Centre Station with trial (partial) service.
- Advertising panels in various forms installed in MRT stations and trains, such as, stickers on curtain walls on platform floors, etc., including other attractive multimedia like product showcase, out of box media, scent media.
- Advertising media on hand grips in trains, benches on platform floors, escalator handrails.
- Advertising media installed on platform floors of MRT stations and in trains (Passenger Information Display Systems (PID)), including digital media to upgrade the existing light boxes and signboards in tunnels to render those media more attractive.
- Communication service, especially mobile phone network in both MRT stations and tunnels, to accommodate 4G signal, including installation of public telephone system in MRT stations.
- Automatic Teller Machine (ATM) service, Cash Deposit Machine of banks, and other automatic machines, such as, mobile top-up vending machines of AIS Kiosk, True Kiosk, and mobile top-up vending machine of Boon-term Kiosk, etc.
- Currency exchange booth of Siam Commercial Bank at Phra Ram 9 Station, connection with Central Plaza Grand Rama 9.

Commercial Development Relating to Expressway Systems

- 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, totaling 292 signboards.
- Shops and public restrooms are provided to expressway users in 4 toll plazas of the Si Rat Expressway and the Udon Rattaya Expressway, namely, Srinagarindra Toll Plaza, Prachachuen Toll Plaza (inbound), Bang Pa-in Toll Plaza (inbound), and Bang Pa-in Toll Plaza (outbound).

## (2) Marketing Promotion Strategies

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, for example, collaborations with alliances and the commercial development licensee (BMN) in organizing GAT Guideline Program by Khun Kru Somsri, under the “Getting Fit Beat GAT by MRT” Project since 2009, promoting the use of spaces and retail shops in Metro Nine at Phra Ram 9 Station, and “Cheewajit” Magazine in promoting various exercises, such as yoga, long-stick danced exercise, etc. In addition, the “M Care Year 6” activity was organized for free health checkups for passengers by leading hospitals and institutes, as well as the “Share 2 Child” activity for youths and schools surrounding the Company’s MRT routes for nine years in a row. In 2015, on the occasion of the 11<sup>th</sup> anniversary of the MRT service, the Company organized the “MRT 11<sup>th</sup> Anniversary Back to School” activity, contest for trophies, scholarships, and study visits to Japan. Moreover, the Company, together with BMN, also organized various activities, such as, the “Metro Mall Summer Trip, Free Trip Around Thailand” activity at Phra Ram 9 Station, and the “Great Queen & Amazing Apparel” exhibition, organized to honor Her Majesty Queen Sirikit at Thailand Cultural Centre Station, etc.

## (3) Distribution Strategies and Channels

Distribution channels vary by the forms of commercial development services, mainly divided into direct presentation and contact to interested customers, and distribution via the Company’s strategic partners.

### 2.3.2.3 Industrial Outlook and Competition

#### Advertising Media

In 2015, the overall economic conditions did not improve, despite the growing amount of money in the advertising industry. The total amount of money spent for advertisement in 2015 was Baht 132,358 Million, an increase by Baht 127,335 Million from 2014 or approximately 4 percent. Digital TV and transit media were the most popular and highest growing media. The total revenue of digital TV media in 2014 amounted to Baht 8,580 Million, which increased up to Baht 20,931 Million or 144 percent at the end of 2015; and the total revenue of transit media in 2014 amounted to Baht 3,813 Million, which increased to Baht 4,478 Million or 17.44 percent in 2015. This was because business operators were interested in new media which can harmoniously and efficiently integrate advertisements into people’s daily life, for example, trendy lifestyle of watching movies at theaters, spending time in the traffic, using the underground metro or public transport services, etc.

Given that the economic conditions did not recover, household income then decreased, thereby resulting in less spending, business operators were more cautious about spending their limited advertising budget. Despite the fact that the advertising budget did not increase substantially, the transit media growth was outstanding and still continuing in 2016. This will be advantageous to the Company, as the MRT service provider, because in the future, the growing volume of MRT passengers and new metro networks will translate into the growing number of viewers of the transit media in the metro and MRT systems. In addition, given the closed enclosure of the MRT stations, service users’ attention will be likely drawn to advertising media in the system, with a slim chance of other visual distractions, particularly modern digital TV media. As a result, the subsidiary’s customer base will grow accordingly.

Sources: - The Nielsen Company (Thailand) Limited  
- Media Agency Association of Thailand (MAAT)

### Space for Lease and Service

Retail space projects in Thailand comprise shopping center, department store, super store mall, specialty store, entertainment complex, community mall and supporting retail space. The retail industry trend in Bangkok and its vicinity is highly competitive, as evidenced by the fastest-growing number of community malls, particularly those shopping centers and community malls which were opened since early 2015 which accounted for more than one million square meters of retail space. Bangkok is still one of the top destinations in Asia attracted by foreign brands or shops for opening their shops or branches in Bangkok, and other tourist attraction provinces and this trend is likely to continue in the future. The rental rates of the retail space projects in Bangkok and surrounding areas are relatively high.

## **2.3.3 Procurement of Products and Services**

### **2.3.3.1 Nature of Procurement of Products**

The Company and one of its subsidiaries operate the commercial development business of the MRT Blue Line Project for 1) procurement and/or production of advertising media of various forms; 2) lease of retail spaces in the MRT stations; and 3) provision of service and maintenance of telecommunications system equipment.

With respect to the expressways, the Company and one of its subsidiaries allowed private entities and individuals to take on lease of expressway areas 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.

### **2.3.3.2 Environmental Impact**

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 2.2.3.2.

### **2.3.3.3 Insurance**

Insurance Policy	Coverage Value	Coverage
Property All Risks Insurance (Retail Areas)	First portion of sum insured: Baht 372,086,193; Second portion of sum insured: Baht 151,431,097	First portion: All risks property; Second portion: Business interruption Insured property: Commercial development areas in MRT stations Coverage period: July 3, 2015 - July 3, 2016
Public Liability (Retail Areas)	Limited liability: Baht 40,000,000	Insured property: Commercial development areas in MRT stations Coverage period: July 3, 2015 - July 3, 2016

## **2.3.4 Works 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 and a risk management handbook as guidelines in the operations, and regularly monitor, evaluate and review risks 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. 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

Given that the Company operates its businesses under the relevant Concession Agreements subject to the supervision of the government agencies, namely, MRTA and EXAT, differences in the contractual parties' interpretations on terms and conditions of the Concession Agreement may arise in various matters, such as, revisions of toll or fare rates, considerations to extend 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.

In addition, 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 to consideration to extend the Concession Agreement 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.

In order to minimize such risk, the Company will establish a joint operation system with the government agencies both at 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. The Company will review the strategies and operation plans to be reasonably suitable to the situations and for their mutual interest in the long run.

##### 3.1.2 Risk Relating to Revenues

As 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. In addition, the Company generates commercial development revenue, which may vary depending upon 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 financial obligations, such as, interest expenses, scheduled repayment of loans, operating expenses under the Agreements, as well as compensation for expressway site acquisition cost or remuneration payable to MRTA, etc.

To minimize such risk, the Company will establish a unit to closely monitor any impact which may affect the initial factors, and formulate appropriate strategies. In addition, the Company can limit potential impacts from risk factors, such as, oil prices, road traffic congestion, 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 billboards, and digital media, including its plans to develop more retail space.

### **3.1.3 Risks from Interest Rate and Foreign Exchange Rate Fluctuations**

Given that the Company has obliged to service interest-bearing liabilities to lenders, and plans for future investment in several 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 fact that the interest cost in respect of the certain credit facility was at the floating interest rate, thereby exposing the Company to a risk from interest rate fluctuation or increase in the money market. However, the Company will manage such risk from interest rate fluctuation, by arranging for the loan structure, divided into loans at floating interest rate 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 addition, the Company will incur expenses in foreign currencies for purchase of rolling stock from overseas, maintenance cost of the M&E Equipment, and insurance premiums. Thus, should the Baht value depreciate, the Company's expenses will increase accordingly. However, the proportion of the expenses in foreign currencies is low. Moreover, the Company will set up a policy to minimize risk from exchange rate, such as, negotiations for reduction of foreign currency expenses and buying forward, etc.

### **3.1.4 Risk from Serious Accidents, Public Unrest, and 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, namely, peril, serious accident, earthquake and such events which may be caused by terrorism or sabotage as bombing and riot, including gathering of activities for inciting public unrest, which may cause the Company to suspend its services and lose its revenues. For this reason, the Company has set forth emergency plans in response to any events which may suddenly occur, for example, removal of various significant and essential M&E equipment in the management of the Expressways for storage at the safe place, and arranges for staff training to ensure that the staff in charge will be able to immediately take actions to resolve such emergency, for instance, emergency drills of all relevant units inside and outside the Company by way of simulation of such various situations as emergency in the metro stations from bomb threat and bomb blast in the metro stations, trains 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.

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

### **3.1.5 Risk in respect of Personnel**

The risk from shortage of competent personnel is considered one of the Company's main risks, as they are 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 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; review and revisions of the operation process and work system to ensure readiness at all times, as well as preparation of succession plan and establishment 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 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 from Delayed Construction and Operation of the Projects**

The Company has accepted the transfer of the Concession Agreements of BECL and BMCL, namely, the Concession Agreement for Investment, Design, Construction, Operation, Service and Maintenance of the Si Rat - Outer Ring Road Expressway Project, and the MRT Purple

Line Project, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section (Klong Bang Phai Station - Tao Poon Station), Contract 4: Concession for Supply of M&E Systems and O&M Services.

As the Company is obliged to comply with the provisions of the Concession Agreements, which will specify the construction period and value, therefore, in case the construction is delayed and not completed according to schedule, or should in the future the actual value of the M&E equipment, metro system, or other construction costs is different from that specified in the relevant Agreements, the Company is exposed to a risk from cost overrun.

To minimize such risk in respect of both delayed work completion and cost overrun, the Company has executed an agreement with CH. Karnchang Public Company Limited, which has expertise and experience in such operations, to manage the projects on a lump sum turnkey basis, subject to the scope of work, duration, and value in line with the conditions in the Concession Agreements.

### **3.2 Corporate Specific Risk**

#### **3.2.1 Risk from Legal Disputes**

The Company and NECL have a total of 12 disputes with EXAT on 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, divided into the disputes that the Company and NECL referred to the dispute settlement proceedings under the Agreements and demanded for damages with the total amount until the date of submission of the disputes of approximately Baht 28,179.8 Million; and the disputes that EXAT submitted claims for damages with the total amount until the date of submission of the disputes of approximately Baht 9 Million.

Most of the major claims for high value damages are made by the Company from EXAT. Therefore, the decision should not materially have any negative risk towards the Company's operational results.

#### **3.2.2 Risk from Return on Investments in Companies less than Projections**

The Company has accepted the transfer of investments in companies whose shares were held by BECL and BMCL, therefore, the Company may be exposed to a risk from return on investments in companies less than 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, which would enable the Company to participate in setting out policies and monitor the operations of the invested companies.

#### **3.2.3 Risks Relating to Fluctuation of Cost of Fare and Operating Cost**

Cost of fare is deemed the main expenditure of the Company's management of the mass rapid transit system project, which comprises repair 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 long-term M&E contract, which the Company accepted the transfer from BMCL, the Euro-denominated payments were adjusted based on the German Consumer Price Index, and Baht-denominated payments must be adjusted based on the Bangkok Consumer Price Index, thereby exposing the Company 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.

The annual remuneration from fare revenue was recorded in two entries, namely, costs of fare box and deferred remuneration, representing deferred expenses against future fare revenue.

Therefore, the Company's costs of fare box vary according to the aforesaid costs. However, regardless of the annual remuneration from fare revenue, in the past, the Company was able to effectively control its costs of fare box. Besides, the costs of fare box are mostly fixed costs, 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 MRT Purple Line Concession Agreement, 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 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 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 staff 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 both the Si Rat Expressway and the Udon Rathaya 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. With respect 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 standby power system and the management of purchase of spare materials.

Moreover, the Company may be exposed to the risk from non-functional toll collection system equipment which may arise by various causes, such as, non-functional electrical system due to power outage from the Metropolitan Electricity Authority, error processing by the operating system or computer virus infection in the system which destroys data in the operating system, including data and information hacks, thereby causing damage to the system, etc. In this regard, the Company gives high priority to such risk management by arranging for power backup system, security system for access to significant systems by third parties, determination of authorization levels of access to information and equipment, and installation of virus scan software and data backup system in the operating system to ensure instant substitution.

### **3.2.5 Risks from Engagement of Siemens as Main Contractor for Supply and Maintenance of the Company's M&E Equipment**

The Company has accepted the transfer of the agreement for procurement of the M&E Equipment and an agreement for maintenance of the M&E Equipment with Siemens AG, Germany, and Siemens Limited, Thailand, which will expire in 2024. Thus, in the event that such Siemens group 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.

According to a study of information from members in the international federations of public transport operators, e.g., UITP, APTA, NOVA Group of Metros, as well as advice from Lloyd's Register Rail, the Company's highly experienced consultant, it is possible to select and procure M&E Equipment from other manufacturers which will be compatible with its existing system. In this regard, the Company has a policy to develop the quality of its personnel to have sufficient capabilities in working with local and overseas equipment manufacturers and contractors in the maintenance and repair of the M&E Equipment and the rail system to improve its efficiency without reliance on the sole existing manufacturer.

## 4. Property Used in Business Operations

### 4.1 Main Fixed Assets

As at December 31, 2015, the Company and its subsidiaries had main fixed assets used in business operations, per the following details:

(Unit: Million Baht)

Class of Assets	Net Book Value as at December 31, 2015
4.1.1 Building and equipment	154
4.1.2 Construction in process	19,626
4.1.3 Rights to operate completed expressway sectors	20,327
4.1.4 Rights to use sites for expressway construction	1,320
4.1.5 Intangible assets under the Concession Agreement for the M.R.T. Chaloem Ratchamongkhon Line	16,988
<b>Main Fixed Assets</b>	<b>58,415</b>

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

#### 4.1.1 Building and Equipment

As at December 31, 2015, the book value of the building and equipment as per the consolidated financial statements of the Company and its subsidiaries were as follows:

(Unit: Million Baht)

Company	Net Book Value as at December 31, 2015	Ownership	Encumbrance
The Company	151	Owner*	None
NECL	1	Owner**	None
BMN	2	Owner	None
<b>Total</b>	<b>154</b>		

**Remarks:** \* This refers to 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.

\*\* NECL does not own any property, plant and equipment, but leases a building as its head office located at No. 587, Sutthisarnvinitchai Road, Dindaeng Subdistrict, Dindaeng District, Bangkok 10400. The lease is on a year by year basis 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 Construction in Process

As at December 31, 2015, the book value of the construction in process as per the consolidated financial statements of the Company and its subsidiaries were as follows:

(Unit: Million Baht)

Company	Net Book Value as at December 31, 2015
The Company	19,626
<b>Total</b>	<b>19,626</b>

#### The Si Rat - Outer Ring Road Expressway Project

The Company executed the Concession Agreement for Investment, Design, Construction, Management, Operation and Maintenance of the Si Rat - Outer Ring Road Expressway Project with EXAT, for a concession period of 30 years, and the Project Management Agreement for construction of such Project with CH. Karnchang Public Company Limited. The construction period shall not exceed 48 months, which commenced on December 15, 2012. As at December 31, 2015, the project progressed approximately 85 percent in line with the plan. In this regard, the Company provided such construction in process as security to secure its long-term loans.

#### 4.1.3 Rights to Operate Completed Expressway Sectors

As at December 31, 2015, the book value of the rights to operate completed expressway sectors as per the consolidated financial statements of the Company and its subsidiaries were as follows:

(Unit: Million Baht)

Company	Net Book Value as at December 31, 2015
The Company	13,070
NECL	7,257
<b>Total</b>	<b>20,327</b>

The rights to operate completed expressway sectors are considered the costs of construction of the Second Stage Expressway System and the Bang Pa-in - Pak Kret Expressway Project, with the details as at December 31, 2015 comprising:

(Unit: Million Baht)

Class of Assets	Book Value as at December 31, 2015	Ownership	Encumbrance
Si Rat Expressway, Sectors A, B and C	39,742	EXAT	Loan Security
Si Rat Expressway, Sector D	9,030	EXAT	Loan Security
Udon Rathaya Expressway	12,928	EXAT	Loan Security*
<b>Total project costs</b>	<b>61,700</b>		
<u>Less:</u> Accumulated amortization of project costs	(41,373)		
<b>Total Net Book Value</b>	<b>20,327</b>		

**Remark:** \* NECL provided the rights to operate completed expressway sectors under the Concession Agreement for the Udon Rathaya Expressway as security to the Company to secure the loan repayment.



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 with the duty to keep such property maintained throughout the term 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, Sector D, has a term of 30 years from April 17, 1997. 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 Si Rat Expressway and the Udon Ratthaya Expressway which shall be paid to EXAT by the Company and NECL, including the costs of maintenance of the expressways throughout the term of the Agreements.

#### 4.1.4 Rights to Use Sites for Expressway Construction

As at December 31, 2015, the book value of the rights to use sites for expressway construction as per the consolidated financial statements of the Company and its subsidiaries were as follows:

(Unit: Million Baht)

Company	Book Value as at December 31, 2015
The Company	
Rights to use sites for expressway construction	6,645
<u>Less:</u> Accumulated amortization	(5,225)
Net	1,320
<b>Total Net Book Value</b>	<b>1,320</b>

The rights to use sites for expressway construction are considered 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.

#### 4.1.5 Intangible Assets under the Concession Agreement for the M.R.T. ChaloeM Ratchamongkhon Line

As at December 31, 2015, the book value of intangible assets under the Concession Agreement for the M.R.T. ChaloeM Ratchamongkhon Line as per the consolidated financial statements of the Company and its subsidiaries were as follows:

(Unit: Million Baht)

Company	Net Book Value as at December 31, 2015
The Company	16,654
NECL	-
BMN	334
<b>Total</b>	<b>16,988</b>

The intangible assets under the Concession Agreement for the M.R.T. ChaloeM Ratchamongkhon Line are considered the costs of construction of the M.R.T. ChaloeM Ratchamongkhon Line, with the details as at December 31, 2015 comprising:

(Unit: Million Baht)

Class of Assets	Book Value as at December 31, 2015	Ownership	Encumbrance
M&E Equipment	18,957	Owner	Loan Security
M&E Equipment and leasehold improvements in metro stations	358	Owner	None
Telecommunications system equipment	414	Owner	None
Advertising system equipment	178	Owner	None
Project costs during construction	378	Owner	None
<b>Total project costs</b>	<b>20,285</b>		
<u>Less:</u> Accumulated amortization of project costs	(3,297)		
<b>Total Net Book Value</b>	<b>16,988</b>		

## 4.2 Investments in Other Companies

### 4.2.1 Summary of Investments as per the Consolidated Financial Statements of the Company and its Subsidiaries

(Unit: Million Baht)

Company	Book Value under Cost Method as at December 31, 2015	Portion of Investment in each Company (percent)	Paid-up Capital as at December 31, 2015	Type of Investments	Nature of Business Operation
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	166	65.19	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	7,018	19.57	3,990	Associated Company	- Production and distribution of tap water
4. CK Power Public Company Limited	3,223	19.40	7,370	Associated Company	- Investment in other companies (Holding Company) operating a business of production and distribution of electricity
5. Xayaburi Power Company Limited	913	7.50	12,175	Other Company	- Construction and operation of the Xayaburi Hydroelectric Power Project

**Remark :** \* The Company (formerly, BECL) acquired additional shares in NECL on November 5, 2015, and as a result, the Company's current shareholding in NECL increased to 99.99 percent of its registered capital.

#### 4.2.2 Policy on Investment and Management in the Subsidiaries

The Company has a 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 at December 31, 2015, the Company invested in subsidiaries, associated companies, and other company, 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 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 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. During 2003-2004, the Company reduced its shareholding in NECL to 53.33 percent of its registered capital. As at December 31, 2015, NECL had the paid-up registered capital in the amount of Baht 5,250 Million. Since the Company provided a large amount of loans for NECL and also is the only creditor of NECL, the Company has therefore assigned its six executives to be members of NECL's board of directors, from a total of seven 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.

On November 5, 2015, the Company (formerly, BECL) acquired additional shares in NECL, and as a result, the Company's current shareholding in NECL increased to 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 of various forms in the metro stations and inside the trains, lease of retail spaces in the MRT Blue Line stations and spaces in the basement level of the Lat Phrao park and ride facility. To date, the retail shops are opened in five stations, namely, Sukhumvit Station, Phahon Yothin Station, Chatuchak Park Station, Kamphaeng Phet Station, and Phra Ram 9 Station. In addition, BMN also provides service and maintains telecommunications system equipment inside the metro stations. As at December 31, 2015, BMN’s registered and paid-up capital was Baht 254 Million, whereby the Company holds shares in BMN representing 65.19 percent of all shares sold, together with 34.81 percent of shares held by other investors having experience and expertise in the businesses of advertising media, marketing, real estate, and telecommunications technology.

As for the policy on future investment in BMN, the Company continues to maintain its shareholding in BMN of not less than 50 percent of all shares in BMN. The Company will receive the return on investment in the form of revenue sharing and dividend income from investment in BMN. 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 provision, whereby TTW holds shares representing 68.50 percent of its registered capital. In addition, TTW invested in the energy business by holding 25 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 dividend income.

At present, the Company, as a shareholder, assigned its representative to be a member of the board of directors of TTW. As at December 31, 2015, the Company held shares in TTW representing 19.57 percent of its registered capital.

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

The Company jointly invested in the establishment of 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 at December 31, 2015, CKP invested by holding shares representing 56 percent in SouthEast Asia Energy Limited; 30 percent in Nakhon Ratchasima Solar Limited; 30 percent in Chiangrai Solar Limited; 100 percent in Bangkhenchai Company Limited; 65 percent in Bangpa-in Cogeneration Limited; 100 percent in CKP Solar Limited; 100 percent in Vis Solis Limited; 100 percent in Helios Power Limited; 100 percent in Apollo Power Limited; 100 percent in Sole Power Limited; and 30 percent in Xayaburi Power Company Limited. The benefits to be derived by the Company shall be in the form of dividend from investment. At present, the Company, as a shareholder, assigned its representative to be a member of the board of directors of CKP. As at December 31, 2015, the Company held shares in CKP representing 19.40 percent of its registered capital.

#### 5. Xayaburi Power Company Limited (“XPCL”)

The Company invested in XPCL, a company which was awarded the concession from the Government of the Lao People’s Democratic Republic for design, development, construction and operation of the Xayaburi Hydroelectric Power Project, with a 29-year concession period from the Commercial Operation Date. The benefits to be derived by the Company shall be in the form of dividend from such investment. As at December 31, 2015, the Company held shares in XPCL representing 7.50 percent of its registered capital. All ordinary shares in XPCL held by the Company have been pledged as security of long-term loan of XPCL. The Company, as a shareholder, assigned its representative to be a member of the board of directors of XPCL.



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## 5. Legal Disputes

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

The Company and NECL have a total of 12 disputes with EXAT, which were referred to the Arbitral Tribunal in accordance with the dispute settlement procedures under the Agreements and in the Administrative Court, divided into the disputes that the Company and the subsidiary referred to the dispute settlement proceedings under the Agreements and demanded for damages with the total amount until the date of submission of the disputes of approximately Baht 28,179.8 Million; and the disputes that EXAT submitted claims for damages with the total amount until the date of submission of the disputes of approximately Baht 9 Million. The essence of each dispute was as follows:

#### 5.1.1 Disputes submitted by the Company and the subsidiary claiming for damages

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

The Company completed the construction of the “Priority Component” of the Si Rat Expressway on November 13, 1992, in respect of which the Agreement specifies that the date on which the Construction Completion takes place in respect of the Priority Component should be deemed as the Priority Component Opening Date, and the Company would then be entitled to receive the toll revenue sharing, but EXAT just commenced sharing the toll revenue with the Company on September 2, 1993, thereby rendering the Company to lose such revenue which should have been received under the Agreement.

EXAT and the Company had different opinions as to which date was the Priority Component Opening Date, from which EXAT was obliged under the Agreement to commence sharing the toll revenue with the Company onwards.

On December 15, 2008, the Arbitral Tribunal rendered its arbitral award on the dispute requiring EXAT to pay the toll revenue sharing which should have been received by the Company for the period from November 13, 1992 to September 2, 1993, amounting to Baht 1,974.6 Million, including interest amounting to Baht 1,856.8 Million, totaling Baht 3,831.4 Million, including interest until the payment would be made in full to the Company.

EXAT submitted a petition to the Central Administrative Court requesting the Court to revoke the arbitral award, and the Company submitted a petition to the Central Administrative Court requesting a judgment to enforce compliance with the arbitral award, with the disputed amount of Baht 5,021.1 Million.

On September 13, 2013, the Central Administrative Court adjudged to dismiss EXAT’s petition requesting the Court to revoke the arbitral award and adjudged to enforce the Company’s petition by requiring EXAT to pay the toll revenue sharing which should have been received by the Company, amounting to Baht 1,974.6 Million, with interest under the Agreement amounting to Baht 3,046.5 Million, totaling Baht 5,021.1 Million, to the Company.

On October 11, 2013, EXAT lodged an appeal against the Central Administrative Court’s judgment with the Supreme Administrative Court. At present, it is pending the Supreme Administrative Court’s consideration.

##### 2. Competing road with the Udon Rattaya Expressway

The Agreement specified that during the term of the Agreement, should EXAT or the Government put into effect any arrangements for the construction or substantial improvement of any road or highway of an expressway standard within the primary catchment area of the expressway, which has the effect of reducing the actual volume of traffic using the expressway or the revenue arising therefrom from the projections, EXAT shall compensate the subsidiary for such effect.

Given 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 affected the financial position of the subsidiary, the subsidiary therefore demanded EXAT to compensate for such effect as per the Independent Certification Engineer’s letter certifying the effect upon the subsidiary.

On November 27, 2008, the Arbitral Tribunal rendered its arbitral award on the dispute requiring EXAT to compensate for the deficient revenue from the projection to the subsidiary for the year 1999 in the amount of Baht 730.8 Million, with interest, and for the year 2000 in the amount of Baht 1,059.2 Million.

EXAT submitted a petition to the Central Administrative Court requesting the Court to revoke the arbitral award, and the subsidiary submitted a petition to the Central Administrative Court requesting a judgment to enforce compliance with the arbitral award, with the disputed amount of Baht 3,296.7 Million.

On May 3, 2013, the Central Administrative Court adjudged to dismiss EXAT's petition requesting the Court to revoke the arbitral award and enforced compliance with the subsidiary's petition, thereby requiring EXAT to compensate for revenue reduced from the projection to the subsidiary for the year 1999 in the amount of Baht 730.8 Million and for the year 2000 in the amount of Baht 1,059.2 Million together with interest until the said payment would be made in full.

On May 31, 2013, EXAT lodged an appeal against the Central Administrative Court's judgment with the Supreme Administrative Court. At present, it is pending the Supreme Administrative Court's consideration.

3. Issuance of variation orders by EXAT

EXAT issued additional variation orders for certain construction work of the Si Rat Expressway and confirmed that EXAT would be responsible for such costs as actually incurred by such variation orders. The Independent Certification Engineer subsequently issued a letter certifying the additional costs in the total amount of Baht 209.1 Million (excluding interest). EXAT refused to make such payment as certified by the Independent Certification Engineer.

On December 20, 2013, the Arbitral Tribunal unanimously rendered its arbitral award requiring EXAT to pay the construction costs and expenses as per such variation orders in the total amount of the principal with interest of Baht 382.5 Million, including interest on the principal of Baht 209.1 Million, until the said payment would be made in full to the Company.

On March 26, 2014, EXAT submitted a petition to the Central Administrative Court requesting the Court to revoke the arbitral award. At present, it is pending the Central Administrative Court's consideration.

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

The Company requested to revise the toll rates under the Second Stage Expressway Agreement which stipulates that the toll rates shall be revised every five-year interval. In this regard, EXAT and the Company had different opinions in respect of the calculation of the tolls to be revised, and as such, EXAT issued the toll rate notification which did not increase the toll rates as proposed by the Company.

On May 14, 2008, the Company submitted the statement of claim to the Thai Arbitration Institute, demanding EXAT to compensate the Company for damages caused by the revision of toll rates for 2003, which was not in accordance with the Agreement, in the total amount of Baht 4,368 Million. The witness examination was completed on October 16, 2015, and the due date for both disputing parties' submission of their closing statements was scheduled for January 5, 2016.

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

The Company requested to revise the toll rates under the Agreement for the Extension of the Second Stage Expressway System (Sector D) which stipulates that the toll rates shall be revised every five-year interval. In this regard, EXAT and the Company had different opinions in respect of the calculation of the tolls to be revised, and as such, EXAT issued the toll rate notification which did not increase the toll rates as proposed by the Company.

On July 24, 2008, the Company submitted the statement of claim to the Thai Arbitration Institute, demanding EXAT to compensate the Company for damages caused by the revision of toll rates for the year 2003, which was not in accordance with the Agreement, in the total amount of Baht 1,048.2 Million. At present, it is in the process of the witness examination, which will be completed in March 2016.

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

The Company requested to revise the toll rates under the Second Stage Expressway Agreement which stipulates that the toll rates shall be revised every five-year interval. In this regard, EXAT and the Company had different opinions in respect of the calculation of the tolls to be revised, and as such, EXAT issued the toll rate notification which did not increase the toll rates as proposed by the Company.

On June 13, 2013, the Company submitted the statement of claim to the Thai Arbitration Institute, demanding EXAT to compensate the Company for damages, together with interest, caused by the revision of toll rates for the year 2008, which was not in accordance with the Agreement, in the total amount of Baht 9,091.8 Million.

At present, it is in the process of the witness examination. The Thai Arbitration Institute scheduled the hearing dates for examination of witnesses of the Company to be held in January 2016.

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

The Company requested to revise the toll rates under the Agreement for the Extension of the Second Stage Expressway System (Sector D) which stipulates that the toll rates shall be revised every five-year interval. In this regard, EXAT and the Company had different opinions in respect of the calculation of the tolls to be revised, and as such, EXAT issued the toll rate notification which did not increase the toll rates as proposed by the Company.

On June 28, 2013, the Company submitted the statement of claim to the Thai Arbitration Institute, demanding EXAT to compensate the Company for damages, together with interest, caused by the revision of toll rates for the year 2008, which was not in accordance with the Agreement, in the total amount of Baht 4,062.8 Million. At present, it is pending selection of candidates for appointment as the Chairman of the Arbitral Tribunal.

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

The subsidiary requested to revise the toll rates under the Bang Pa-in - Pak Kret Expressway Agreement which stipulates that the toll rates shall be revised every five-year interval. In this regard, EXAT and the subsidiary had different opinions in respect of the calculation of the tolls to be revised, and as such, EXAT issued the toll rate notification which did not increase the toll rates as proposed by the subsidiary.

On October 22, 2013, the subsidiary submitted the statement of claim to the Thai Arbitration Institute, demanding EXAT to compensate the subsidiary for damages, together with interest, caused by the revision of toll rates for the year 2003, which was not in accordance with the Agreement, in the total amount of Baht 908.7 Million, and interest shall be calculated on a daily basis on the principal of the damages in the amount of Baht 561.9 Million from the day following the date of submission of the statement of claim until EXAT would compensate the subsidiary for the principal of such damages, together with interest in full.

On June 23, 2014, the subsidiary submitted a letter of appointment of its arbitrator, and EXAT submitted a letter of appointment of its arbitrator on June 25, 2015.

At present, it is pending selection of candidates for appointment as the Chairman of the Arbitral Tribunal.

### 5.1.2 Disputes submitted by EXAT claiming for damages

EXAT referred four disputes to the Arbitral Tribunal requiring the Company and its subsidiary to be held liable for costs, in the total amount of Baht 9 Million, which the Company and its subsidiary were of the view that such costs claimed by EXAT were not within their scope of responsibility under the Agreements. In this regard, the Arbitral Tribunal rendered its arbitral awards on three disputes, two disputes of which were referred by EXAT to the Administrative Court for enforcement of the arbitral award and revocation of the arbitral award.

1. Additional construction work

On September 25, 2009, the Arbitral Tribunal issued its arbitral award requiring the Company to reimburse EXAT for the amount advanced by EXAT for mitigation of damage for complainants, in the amount of Baht 1.7 Million. The Company submitted

a petition to the Central Administrative Court requesting the Court to revoke the arbitral award. EXAT submitted a petition requesting compliance with the arbitral award to the Central Administrative Court.

The Central Administrative Court rendered its judgment revoking the arbitral award, and as such, the Company's petition was dismissed. Having considered the current facts, the Company deemed it appropriate not to lodge an appeal against the Central Administrative Court's judgment with the Supreme Administrative Court.

On February 27, 2015, the Central Administrative Court adjudged to enforce the arbitral award in the case where EXAT submitted the petition requesting compliance with the arbitral award, by requiring the Company to comply with the arbitral award within 60 days from the date the case was final. Such arbitral award required the Company to install noise barriers for 6 complainants, arrange for entrance-exit for 3 complainants, and reimburse EXAT for Baht 1.4 Million which was advanced to the complainants.

On March 20, 2015, the Company made payment to EXAT pursuant to the judgment in the amount of Baht 1.4 Million, together with interest from the date on which EXAT advanced such amount until the payment would be made in full in the amount of Baht 1.3 Million, totaling Baht 2.7 Million, and the Company submitted to the Central Administrative Court its statements for notification of its compliance with the arbitral award.

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

On January 23, 2014, the Arbitral Tribunal issued its arbitral award ruling that EXAT may not exercise a right of claim demanding the Company to pay the cost of arrangements of the entrance - exit and the cost of road construction, together with drainage and free flow drains, totaling Baht 0.4 Million, therefore dismissed EXAT's claims and requests.

On May 7, 2014, EXAT submitted a petition for revocation of the arbitral award to the Central Administrative Court. At present, it is pending the Central Administrative Court's consideration.

3. Cost of utilization of the Second Stage Expressway Control Center Building

On February 16, 2015, the Arbitral Tribunal rendered its arbitral award that the Company was not required to deliver or leave the vicinity of the Second Stage Expressway Control Center Building, and was not required to pay EXAT for the cost of utilization of such area. In this regard, EXAT accepted this arbitral award, the case was thus final.

However, given that all of the remaining cases are not yet final and the Company's management believed that there would be no material impact upon the Company, the Company therefore did not record such entries in the financial statements.

### 5.1.3 Lawsuit

An expressway user sued the Expressway Authority of Thailand (EXAT) and the Company on grounds of wrongful act in relation to traffic management and safety on the Si Rat Expressway System, whereby EXAT was the first defendant and the Company was the second defendant. The Court of First Instance adjudged to dismiss the plaintiff's claim. The Appeal Court adjudged to require EXAT and the Company to jointly compensate the plaintiff in a total amount of Baht 2.3 Million, with interest at the rate of 7.5 percent per annum, from May 21, 2005 onwards until the payment would be made in full. In this regard, the Company, EXAT and the plaintiff lodged their respective appeals with the Supreme Court.

On June 30, 2015, the Supreme Court adjudged to confirm the Appeal Court's judgment requiring EXAT and the Company to jointly compensate the plaintiff. On August 10, 2015, the Company duly deposited such payment with the Court per the judgment.

## 6. General Information and Other Significant Information

### 6.1 General Information

#### (1) General information of the Company

<b>Company Issuing Securities</b>	<b>: Bangkok Expressway and Metro Public Company Limited (“BEM”)</b>
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 Sutthisarnvinitchai Road, Dindaeng 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

<b>Company Issuing Securities</b>	<b>: Northern Bangkok Expressway Company Limited (“NECL”)</b>
Business Operation	: Construction and management of the Udon Rattaya Expressway
Head Office	: 587 Sutthisarnvinitchai Road, Dindaeng 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

<b>Company Issuing Securities</b>	<b>: Bangkok Metro Networks Limited (“BMN”)</b>
Business Operation	: 1. Lease of retail spaces in the metro stations and the basement level of the Lat Phrao park and ride facility 2. Procurement and/or production of advertising media in the metro stations and inside the trains 3. Provision of service and maintenance of telecommunications system equipment in the metro stations
Head Office	: 587 Viriyathavorn Building, 12 <sup>th</sup> Floor, Sutthisarnvinitchai Road, Dindaeng Subdistrict, Dindaeng District, Bangkok 10400
Branch Office	: 587 Viriyathavorn Building, 9 <sup>th</sup> Floor, Sutthisarnvinitchai Road, Dindaeng Subdistrict, Dindaeng District, Bangkok 10400
Registered Capital	: Baht 254 Million, which is fully paid up.
Shareholding Percentage	: 65.19 percent
Telephone	: 0 2690 8200
Fax	: 0 2690 8212
Website	: www.bmn-mrt.com

<b>Company Issuing Securities</b>	<b>: TTW Public Company Limited (“TTW”)</b>
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	: 19.57 percent
Telephone	: 0 2811 7526
Fax	: 0 2420 6064
Website	: www.ttwplc.com

<b>Company Issuing Securities</b>	<b>: CK Power Public Company Limited (“CKP”)</b>
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 <sup>th</sup> Floor, Sutthisarnvinitchai Road, Dindaeng Subdistrict, Dindaeng District, Bangkok 10400
Registered Capital	: Baht 9,240 Million, Baht 7,370 Million of which is paid up.
Shareholding Percentage	: 19.40 percent
Telephone	: 0 2691 9720
Fax	: 0 2691 9723
Website	: www.ckpower.co.th



### (3) Reference

<b>Securities Registrar</b>	<b>: Thailand Securities Depository Company Limited</b> The Stock Exchange of Thailand 93 Rachadapisek Road, Dindaeng Subdistrict, Dindaeng District, Bangkok 10400 Telephone : 0 2009 9382 Fax : 0 2009 9476
<b>Auditor</b>	<b>: EY Office Limited</b> 193/136-137 Lake Rajada Office Complex, 33 <sup>rd</sup> Floor, New Rajadapisek Road Klongtoey District, Bangkok 10110 Telephone : 0 2264 0777 Fax : 0 2264 0789

## 6.2 Other Significant Information

### Key Summary of Agreements

#### 6.2.1 The Second Stage Expressway Agreement

<b>Execution Date</b>	December 22, 1988
<b>Party</b>	The Expressway Authority of Thailand (“EXAT”)
<b>Key Summary</b>	The Company is obliged to carry out construction and operation of the Si Rat Expressway (Second Stage Expressway), as well as related businesses under the Second Stage Expressway Agreement, for a concession period of 30 years from March 1, 1990 until February 29, 2020, under the terms and conditions to be agreed upon between both parties. The Second Stage Expressway System comprises Sector A (Rama IX-Ratchadapisek), Sector B (Phayathai - Bangkhlo), and Sector C (Ratchadapisek - Chaeng Watthana), covering a total distance of 29.8 kilometers. The Company shall be entitled to receive the toll revenue sharing throughout the concession period in respect of both the Si Rat Expressway and the Chalerm Mahanakorn Expressway (First Stage Expressway), as constructed and operated by EXAT.

#### 6.2.2 The Agreement for the Extension of the Second Stage Expressway System (Sector D)

<b>Execution Date</b>	April 17, 1997
<b>Party</b>	The Expressway Authority of Thailand (“EXAT”)
<b>Key Summary</b>	The Company is obliged to carry out construction and operation of the Si Rat Expressway (Second Stage Expressway) for the extension of the Second Stage Expressway System, Sector D (Rama IX - Srinagarindra), covering a total distance of 8.7 kilometers, for a concession period of 30 years from April 17, 1997 until April 16, 2027. The Company shall be entitled to receive the toll revenue throughout the concession period.

### 6.2.3 The Concession Agreement for Investment, Design, Construction, Operation, Provision of Service and Maintenance of the Si Rat - Outer Ring Road Expressway Project

<b>Execution Date</b>	September 15, 2012
<b>Party</b>	The Expressway Authority of Thailand (“EXAT”)
<b>Key Summary</b>	<p>The Company is obliged to carry out design, construction and operation of the Si Rat - Outer Ring Road Expressway (starting from Kanjanapisek Road and connecting to the Si Rat Expressway around the North of the Mo Chit 2 Bus Terminal), covering a total distance of 16.7 kilometers, for a concession period of 30 years from December 15, 2012 until December 14, 2042. The Company shall be entitled to receive the toll revenue throughout the concession period.</p> <p>The concession period is divided into two phases:</p> <ul style="list-style-type: none"> <li>• <u>Phase 1</u>: Design, construction, supply and installation of electrical and mechanical system equipment, toll collection system, communications system and traffic controlling system, and other systems relating to the Expressway, for the period of not exceeding 48 months from December 15, 2012;</li> <li>• <u>Phase 2</u>: Operation and provision of service, such as, toll collection, rescue operation and maintenance of the Expressway.</li> </ul>

### 6.2.4 The Bang Pa-in - Pak Kret Expressway Agreement

<b>Execution Date</b>	September 27, 1996
<b>Parties</b>	Northern Bangkok Expressway Company Limited (“NECL”) and the Expressway Authority of Thailand (“EXAT”)
<b>Key Summary</b>	NECL is obliged to carry out construction and operation of the Udon Raththaya Expressway (Bang Pa-in - Pak Kret Expressway), connecting to the Si Rat Expressway around Chaeng Watthana Road and ending at Amphoe Bang Pa-in, Phra Nakhon Si Ayutthaya Province, covering a total distance of 32 kilometers, for a concession period of 30 years from September 27, 1996 until September 26, 2026.

### 6.2.5 The Project Management Agreement for Construction of the Si Rat - Outer Ring Road Expressway Project

<b>Execution Date</b>	September 15, 2012
<b>Party</b>	CH. Karnchang Public Company Limited (“CH. Karnchang Plc.”)
<b>Key Summary</b>	The Company engaged CH. Karnchang Plc. on a Lump Sum Turnkey basis as project manager for the design and construction of the Si Rat - Outer Ring Road Expressway, supply and installation of electrical and mechanical system equipment, toll collection system, communications system and traffic controlling system, rescue operation system and other systems, including administration of the construction until completion, for the construction period of 48 months from December 15, 2012 or until December 14, 2016, with the project value of Baht 22,500 Million.

#### 6.2.6 The Concession Agreement for the MRTA Initial System Project - Chaloem Ratchamongkhon Line

<b>Execution Date</b>	August 1, 2000
<b>Party</b>	The Mass Rapid Transit Authority of Thailand (“MRTA”)
<b>Key Summary</b>	<p>The Company has been granted the exclusive right by MRTA for:</p> <ul style="list-style-type: none"> <li>• Design, manufacture, supply, installation, testing of the M&amp;E Equipment, including trial running to ensure its readiness for general public services;</li> <li>• Operation and maintenance of M&amp;E Systems for commercial operation with the purpose of the public mass rapid transit service;</li> <li>• Financing for support of the Company’s operation under this Agreement.</li> </ul> <p>The Company (formerly, BMCL) executed the Concession Agreement for the MRTA Initial System Project - Chaloem Ratchamongkhon Line (Hua Lamphong Station - Bang Sue Station) with MRTA. The official commencement of operations was on July 3, 2004. The Company has the exclusive right to collect fare box revenue and undertake any and/or all activities and commercial development as specified in the Agreement, including advertising, retail space leasing in the project and telecommunications services in the metro stations and in the trains, for a period of 25 years from July 2, 2004 until July 1, 2029.</p>

#### 6.2.7 The Maintenance Contract for the Maintenance of the M&E Equipment and Trackwork, including its Amendments

<b>Execution Date</b>	December 19, 2001 (with amendments on July 3, 2007, December 12, 2008, July 1, 2010, and September 30, 2013)
<b>Party</b>	Siemens (Thailand) Limited (“Siemens”)
<b>Key Summary</b>	Siemens is obliged to carry out repair and maintenance of the M&E Equipment and Trackwork, supply and installation of necessary spare parts for the systems, planning for inspection for safety, storage and procurement of spare parts, recruitment of necessary personnel for the Company’s maintenance unit, and storage and delivery of adequate spare parts for one-year operation to the Company after expiration of the Maintenance Contract, which will expire in July 2024.

#### 6.2.8 The Spare Supply Contract for the Delivery of Spares and Rendering of Engineering Support Services for the M&E Equipment and Trackwork, including its Amendments

<b>Execution Date</b>	January 30, 2002 (with amendments on July 3, 2007, December 12, 2008, July 1, 2010, and September 30, 2013)
<b>Party</b>	Siemens AG, Germany (the party has been changed from Lincas Electro Vertriebs - Gesellschaft m.b.H to Siemens AG, Germany, a company in the same group)
<b>Key Summary</b>	Siemens AG is obliged to carry out repair and maintenance of the M&E Equipment and Trackwork, supply and installation of necessary spare parts for the systems, planning for inspection for safety, storage and procurement of spare parts, recruitment of necessary personnel for the Company’s maintenance unit, and storage and delivery of adequate spare parts for one-year operation to the Company after expiration of the Maintenance Contract, which will expire in July 2024.

### 6.2.9 The Agreement for Granting of Right for Commercial Development to Bangkok Metro Networks Limited

<b>Execution Date</b>	March 11, 2005, October 1, 2007, August 18, 2009, with amendments on February 25, 2009 and March 11, 2015
<b>Party</b>	Bangkok Metro Networks Limited (“BMN”)
<b>Key Summary</b>	<p>BMN has the right for commercial development, as follows:</p> <ul style="list-style-type: none"> <li>• Right for development of spaces in 11 metro stations and the basement level of Lat Phrao park and ride facility;</li> <li>• Right for commercial development for procurement and/or production of advertising media in various forms, such as stickers, light boxes of various sizes, platform billboards, in the metro stations and trains;</li> <li>• Right for provision of telecommunications service in the metro stations and trains, as well as IRDN (Integrated Radiating Distributed Network) service, to accommodate the communication service of all mobile phone systems, including other telecommunications service of all types in the future;</li> <li>• Right for management of the Passenger Information Display installed in the metro stations and trains.</li> </ul>

### 6.2.10 The Concession Agreement for the MRT Purple Line Project, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section (Khlomg Bang Phai Station - Tao Poon Station), Contract 4: Concession for Investment, Supply of M&E Systems and O&M Services

<b>Execution Date</b>	September 4, 2013
<b>Party</b>	The Mass Rapid Transit Authority of Thailand (“MRTA”)
<b>Key Summary</b>	<p>This Agreement is a concession agreement for investment, supply of M&amp;E Systems, and O&amp;M services, for a concession period of 30 years from September 4, 2013 to September 3, 2043, on a PPP Gross Cost basis, or a joint investment between the government sector and the private sector, whereby the government sector invests in all civil works and the private sector invests in the M&amp;E Systems and the rolling stocks, including the O&amp;M Services according to standards as specified in the Agreement.</p> <p>The main duties of the Company under this Concession Agreement are as follows:</p> <ul style="list-style-type: none"> <li>• <u>Phase 1: Design and Construction</u></li> </ul> <p>To invest in the design, supply, installation, commissioning of the M&amp;E Equipment, including 21 rolling stocks with three cars each, signaling, communications, power supply, automatic fare collection, repair and maintenance equipment, platform screen doors, and other related equipment in all 16 metro stations, for a total distance of 22 kilometers, and in the depot at Khlomg Bang Phai, construction of dormitory and training building, and other public utilities in the depot at Khlomg Bang Phai, as well as management of the construction and personnel for train operation and trial run, until completion and handover of the ownership to MRTA and opening of the train operation service under the terms and conditions as specified in the Agreement;</p>

	<ul style="list-style-type: none"> <li> <b>Phase 2: Train Operation Service</b>  To provide the operation and maintenance services for the MRT Purple Line Project, Tao Poon Station - Khlong Bang Phai Station, throughout the concession period, in accordance with the quality standards and requirements as specified by MRTA in the Concession Agreement, as well as to arrange for maintenance and improvement of related equipment and tools, in respect of both civil infrastructure and M&amp;E Equipment, including personnel with knowledge and expertise as necessary and sufficient for operation under the Agreement throughout the concession period. The Works in Phase 2 are exclusive of management and maintenance of all four park and ride facilities. </li> </ul>
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**6.2.11 The Project Management Agreement for Supply and Installation of the M&E Systems for the MRT Purple Line Project, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section (Khlong Bang Phai Station - Tao Poon Station), Contract 4: Concession for Supply of M&E Systems and O&M Services**

<b>Execution Date</b>	September 4, 2013 (with amendment on November 17, 2015)
<b>Party</b>	CH. Karnchang Public Company Limited ("CH. Karnchang Plc.")
<b>Key Summary</b>	<p>CH. Karnchang Plc. has main duties under this Project Management Agreement to complete the Works in Phase 1 of the Concession Agreement for opening of the train operation service. The Works in Phase 1 of the Concession Agreement comprise the design, supply, installation, commissioning of the M&amp;E Equipment, including 21 rolling stocks with three cars each, signaling, communications, power supply, automatic fare collection, repair and maintenance equipment, platform screen doors, and other related equipment in all 16 metro stations, for a total distance of 22 kilometers, and in the depot at Khlong Bang Phai, construction of dormitory and training building, and other public utilities in the depot at Khlong Bang Phai, as well as management of the construction and personnel for train operation and trial run. CH. Karnchang Plc. must complete such arrangements within 1,200 days from the date the Company executed the Concession Agreement or until December 17, 2016 for the contract value of not exceeding Baht 20,011 Million.</p> <p>In addition, CH. Karnchang Plc. will arrange for financing for the Works in Phase 1 of the Concession Agreement and accept the payment of the M&amp;E Equipment from the Company in accordance with the repayment schedule to be received by the Company from MRTA under the Concession Agreement (Contract 4).</p> <p>Later on November 17, 2015, the scope of maintenance work has been amended, therefore, CH. Karnchang Plc.'s main duties under the Agreement are added to read as follows:</p> <ul style="list-style-type: none"> <li>To maintain the civil infrastructure, including stations, elevated structures, and depot;</li> <li>To maintain the M&amp;E Equipment inside stations, elevated structures, and depot;</li> <li>To maintain elevators and escalators inside stations and depot;</li> <li>To supply equipment, tools, spare parts and personnel for maintenance work.</li> </ul> <p>CH. Karnchang Plc. shall provide such maintenance service for eight years from November 17, 2015 to November 16, 2023 for the contract value of not exceeding Baht 1,520 Million.</p>

**6.2.12 The Contract for Engineering Services and Commissioning for Operation Service in the MRT Purple Line Project, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section (Khlung Bang Phai Station - Tao Poon Station), Contract 4: Concession for Supply of M&E Systems and O&M Services**

<b>Execution Date</b>	May 2, 2014
<b>Party</b>	CH. Karnchang Public Company Limited ("CH. Karnchang Plc.")
<b>Key Summary</b>	<p>The Company (formerly, BMCL) has main duties under this Contract as follows:</p> <ul style="list-style-type: none"> <li>To provide support in terms of information, documents and skilled personnel in the selection of subcontractor/manufacturer of the Railway Systems, including preparation of the tender documents for submission of proposals, evaluation of proposals, and negotiations on details and conditions thereof;</li> <li>To arrange for skilled personnel to participate in the carrying out of the design, supply, installation and commissioning of the Railway Systems to CH. Karnchang Plc. in support of the operation under the Contract;</li> <li>To prepare manuals, operating procedures, regulations and the O&amp;M Services plans as well as personnel training for the O&amp;M Services, so as to be ready for service within the timeframe specified in the Agreement.</li> </ul> <p>The Company shall complete such arrangements within a period of not exceeding 32 months from the date of execution of the Contract or until January 1, 2017 for the contract value of not exceeding Baht 450 Million.</p>

**6.2.13 The Project Management Agreement with CH. Karnchang Public Company Limited for Supply and Installation of Equipment, and Maintenance Services on Civil Infrastructure and M&E Systems for the MRT Purple Line Project, Bang Yai - Rat Burana, Bang Yai - Bang Sue Section (Bang Sue Station - Tao Poon Station, excluding the stations), Contract 5: Concession for Investment, Supply of M&E Systems and O&M Services, as well as for Supply and Installation of Equipment to Upgrade Communication Systems of the MRT Blue Line Project**

<b>Execution Date</b>	November 5, 2015
<b>Party</b>	CH. Karnchang Public Company Limited ("CH. Karnchang Plc.")
<b>Key Summary</b>	<p>CH. Karnchang Plc. has main duties under the Agreement as follows:</p> <ul style="list-style-type: none"> <li>To carry out the works under the scope of the Works in Phase 1 of the Concession Agreement, whereby CH. Karnchang Plc. shall supply the M&amp;E Equipment, e.g., signaling systems, power supply systems, communication systems, SCADA system, automatic fare collection system (AFC), and other systems as per the details in the Concession Agreement, including preparations and financing for the Works in Phase 1;</li> <li>To upgrade the communication systems of the M.R.T. Chaloe M Ratchamongkhon Line Project (MRT Blue Line) to be compatible with the MRT Purple Line Project;</li> <li>To maintain civil infrastructure and M&amp;E Systems, to ensure that the performance of such systems meets the requirements of the Works in Phase 2 of the Concession Agreement.</li> </ul> <p>CH. Karnchang Plc. shall complete such arrangements under the scope of the Works in Phase 1 within a period of not exceeding 15 months from the date of MRTA's notice to proceed, and under the scope of the Works in Phase 2 within a period of not exceeding 12 months from the train operation commencement for the contract value of not exceeding Baht 1,056 Million.</p>



**6.2.14 The Project Management Agreement with CH. Karnchang Public Company Limited for Maintenance Service on Civil Infrastructure and M&E Systems for the M.R.T. Chaloe Ratchamongkhon Line Project (MRT Blue Line) (Hua Lamphong Station - Bang Sue Station)**

<b>Execution Date</b>	November 17, 2015
<b>Party</b>	CH. Karnchang Public Company Limited ("CH. Karnchang Plc.")
<b>Key Summary</b>	<p>CH. Karnchang Plc. has main duties under this Agreement as follows:</p> <ul style="list-style-type: none"> <li>• To maintain the civil infrastructure, including stations, tunnels and depot;</li> <li>• To maintain the M&amp;E Systems inside stations, tunnels and depot;</li> <li>• To maintain elevators and escalators inside stations;</li> <li>• To supply equipment, tools, spare parts, and personnel for maintenance work.</li> </ul> <p>CH. Karnchang Plc. shall provide such maintenance service for eight years from November 17, 2015 to November 16, 2023 for the contract value of not exceeding Baht 1,270 Million.</p>