

## DETAILS OF IMPLEMENTATION ARRANGEMENTS

### A. Regulatory Framework

1. The Mass Rapid Transit Authority of Thailand (MRTA), the State Railway of Thailand, and the Bangkok Metropolitan Administration are three government entities involved in preparing, implementing, and operating mass rapid transit (MRT) projects in Thailand. The MRTA is considered the lead agency in developing and implementing MRT projects.

2. The MRT Pink Line and Yellow Line are being developed as a public–private partnership net cost scheme,<sup>1</sup> under which the MRTA is responsible for providing the land and the right of way while the concessionaire invests in civil works, mechanical and equipment systems, and rolling stock, including operation and maintenance services. The project is implemented on a build–transfer–operate basis, under which the concessionaire is obliged to transfer the ownership of the project to the MRTA when the MRTA issues commissioning certificates, and the MRTA will give the concessionaire the right to operate and receive revenues from the project. The concession period is 33 years and 3 months, comprising 3 years and 3 months for the construction period and 30 years for the operation period.

### B. Management

3. While the tender process was undertaken independently for the MRT Pink Line and Yellow Line, the BSR Joint Venture (BSR) won the concession for both lines. BSR established two special-purpose companies—the Northern Bangkok Monorail Company Limited (NBM) and the Eastern Bangkok Monorail Company Limited (EBM)—in which BTS Group Holdings Public Company Limited (BTS Group) holds 75% of the shares of each company, Sino-Thai Engineering and Construction Public Company Limited (STECON) holds 15% of the shares, and Ratchaburi Electricity Generating Holding Public Company Limited (RATCH) hold 10% of the shares. In June 2017, NBM entered into a concession agreement with the MRTA for the MRT Pink Line project, and EBM entered into a concession agreement for the MRT Yellow Line project.

4. NBM and EBM are exclusively entitled to receive fare revenues, parking fees, and other revenues, including advertising and leasing space in the trains, stations, park-and-ride buildings, sky bridges, and walkway connections from each line. The MRTA will provide fixed subsidies during the first 10 years of operation to mitigate the risk and improve the project’s financial sustainability. **[CONFIDENTIAL INFORMATION DELETED]**.

### C. Construction Arrangements

5. **Civil works.** **[CONFIDENTIAL INFORMATION DELETED]**. There is a construction arrangement with STECON. STECON is a leading large-scale engineering and construction company in Thailand which was established in 1962 and was rated *A–/Stable* by TRIS Rating as at February 2018. STECON has proven experience constructing MRT projects, including the MRT Purple Line and Airport Rail Link.

6. **Mechanical and electrical.** **[CONFIDENTIAL INFORMATION DELETED]**. The project will use monorail trains equipped with automatic train control technology for driverless operation from Bombardier. Bombardier is a subsidiary of Bombardier Transportation GmbH, a global leader

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<sup>1</sup> Sector Review (accessible from the list of linked documents in Appendix 2 of the report and recommendation of the President).

in the rail vehicle and equipment manufacturing and servicing industry. It has installed over 100,000 rail cars and locomotives worldwide. Bombardier Transportation is a division of Bombardier Inc., one of the world's leading manufacturer of both planes and trains. Bombardier is a listed company in the Toronto Stock Exchange and the Dow Jones Sustainability North America Index. It has a current market capitalization of approximately \$7.6 billion,<sup>2</sup> and was rated *B3* by Moody's, *B-* by Standard & Poor's, and *B* by Fitch as at February 2018.

7. **Project management.** The Bangkok Mass Transit System Public Company Limited (BTSC) has been engaged to provide project management services. BTSC will supervise, inspect, instruct, and coordinate between STECON, Bombardier, and other contractors. It will also provide maintenance management systems, and preoperation and readiness works, including trial run. [CONFIDENTIAL INFORMATION DELETED]. BTSC is a majority owned (97.46%) subsidiary of BTS Group. BTSC is the exclusive concessionaire and operator of the Green Line (core line) as well as the exclusive operator of certain extensions of the Green Line, and the bus rapid transit system. BTSC's current corporate credit rating is *A* by TRIS Rating

#### D. Operations Arrangements

8. The MRT Pink Line will operate between Min Buri district in Bangkok and Khae Rai in Nonthaburi province, and will connect with the existing lines (Purple Line, Green Line) and new MRT lines (Red Line, Orange Line). The total length is about 34.5 kilometers (km) with 30 stations and one park-and-ride facility. The MRT Yellow Line will operate between Lat Phrao in Bangkok and Samrong in Samut Prakarn province and will connect with the existing lines (Green Line, Blue Line, and Airport Rail Link) and new MRT lines (Orange Line). The total length is about 30 km with 23 stations and one park-and-ride facility. Both lines are expected to start operating in 2021. The Pink Line will initially consist of 42 trainsets and the Yellow Line 30 trainsets, with service every weekday from 6 am to midnight. The first and last train times may be adjusted to meet passenger and traffic demand. Service frequency may vary during time periods to cater for peak and off-peak demands but is expected to be every 5 minutes during peak hours at the beginning of the operation.

9. **Operation and maintenance.** The operation and maintenance (O&M) services to be provided during the 30-year concession period will be provided by the BTSC. The BTSC will ensure that overall service quality provided to passengers is safe, secure, and fully compliant with internationally recognized codes and standards when compared to similar high-quality monorail service systems elsewhere. The company will also provide sufficient control room, train crew, station, and maintenance staff to operate and maintain a service to the public (i.e., hours of operation, frequency of trains, and quality of service). The BTSC is obliged to manage control room operation, station operation, train operation, and safety management by itself, while other O&M services can be subcontracted to third parties or product owners including cleaning, security and maintenance of proprietary equipment such as lift, escalator and monorail vehicle. [CONFIDENTIAL INFORMATION DELETED].

10. **Government subsidies.** The amount of the government subsidies was the key parameter of the project's tender in which NBM and EBM proposed the best offers for the Pink Line and Yellow Line. The government has agreed to provide B22.5 billion of subsidies to NBM for the civil works of the Pink Line and B25.05 billion to EBM for the Yellow Line. The subsidies will be paid to NBM and EBM in yearly installments for 10 years upon the start of train operations services.

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<sup>2</sup> Bloomberg (as of 30 April 2018).

[CONFIDENTIAL INFORMATION DELETED].

**E. Project Performance Monitoring, Reporting, and Evaluation**

11. The borrowers will submit quarterly unaudited financial statements and annual audited financial statements to the Asian Development Bank (ADB). External auditors will review the borrowers' interim financial statements and audit its annual financial statements in accordance with Thai Financial Reporting Standards, which are based on the International Financial Reporting Standards.

[CONFIDENTIAL INFORMATION DELETED].