Report and Recommendation of the President to the Board of Directors

Project Number: 48368-001
November 2015

Proposed Loans and Guarantee
Myingyan Natural Gas Power Project (Myanmar)

This is an abbreviated version of the document approved by ADB's Board of Directors that excludes information that is subject to exceptions to disclosure set forth in ADB's Public Communications Policy 2011.

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 28 September 2015)

Currency unit – kyat/s (MK)

MK1.00 = $0.001

$1.00 = MK1,288

ABBREVIATIONS

ADB	–	Asian Development Bank
BOT	–	build–operate–transfer
GSA	–	gas supply agreement
kWh	–	kilowatt-hour
m^3	–	cubic meter
MEPE	–	Myanma Electric Power Enterprise
MMID	–	MMID Utilities Pte. Ltd.
MOEP	–	Ministry of Electric Power
MOGE	–	Myanma Oil and Gas Enterprise
MW	–	megawatt
PRG	–	political risk guarantee
PPA	–	power purchase agreement
PPP	–	public–private partnership
SCI	–	Sembcorp Industries Pte. Ltd.
SCU	–	Sembcorp Utilities Pte. Ltd.
TA	–	technical assistance

NOTES

In this report, "$" refers to US dollars, unless otherwise stated.

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CONTENTS

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan of up to $152,200,000, comprising (i) an A loan of up to $42,200,000 and (ii) a B loan of up to $110,000,000, and a proposed political risk guarantee (PRG) of up to $110,000,000 of principal plus interest, interest breakage costs, and PRG fees[1] for commercial lenders for the Myingyan Natural Gas Power Project in Myanmar.[2]

II. THE PROJECT

A. Project Identification and Description

1. Project Identification

2. After several decades of underinvestment, the development of Myanmar's energy sector lags other Asian countries, despite abundant energy resources, including hydropower and natural gas. In March 2015, Myanmar had 4,655 megawatts (MW) of installed capacity, of which hydroelectric power plants accounted for 3,151 MW (67.7%). The available capacity is only about 50% of the total.[3] Gas and coal power plants are not fully operated due to poor maintenance, while hydropower lacks water during the dry season. Hence, Myanmar's power grid experiences significant load shedding during the dry season of up to 500 MW. Annual per capita electricity consumption in 2013 was 165 kilowatt-hours (kWh), among the lowest in the world.[4] The world average consumption is 3,000 kWh/capita; the least-developed country average is 174 kWh/capita. The inadequate and unreliable supply of electricity and the high cost of backup generators are major obstacles for industries and major hindrances to economic growth. The lack of electricity also hampers social progress; health, education, and other essential services were negatively impacted by the low electrification rate of 33% in 2014.[5]

3. Since 2011, the Myanmar government has introduced important economic and political reforms, and significantly improved the regulatory framework for foreign direct investment. In particular, it has pursued a policy of liberalizing the energy sector and opening it up to foreign investment. In 2013, Myanmar requested Asian Development Bank (ADB) support for the development of a public–private partnership (PPP) framework and tools to better direct and balance PPP project outcomes. ADB Southeast Asia Department provided technical assistance (TA) to help the Ministry of Electric Power (MOEP) develop fair and balanced terms for private sector investment in power generation.[6] The TA established international standard criteria, processes, analytic methods, and documentation to provide a sound basis for government tendering of projects with private sector participation, by taking advantage of established principles of competitive bidding and procurement criteria in other countries with a sound regulatory framework. ADB provided MOEP with a draft framework power purchase agreement (PPA) and tendering documents, such as a request for proposal template for a variety of power generation technologies.

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1 The Asian Development Bank's (ADB) maximum aggregate liability under the PRG will be $240 million.
2 The design and monitoring framework is in Appendix 1.
3 Government of Myanmar, Ministry of Electric Power. 2015. *World Hydropower Congress: Asia Assessing Demand and Opportunities.* Beijing.
4 United Nations. http://data.un.org.
5 World Bank. 2014. *Myanmar: Towards Universal Access to Electricity by 2030.* Washington, DC.
6 ADB. 2014. *Technical Assistance to the Republic of the Union of Myanmar for Support for Public–Private Partnership Framework Development.* Manila.

4. An International Finance Corporation advisory team was subsequently appointed to assist MOEP in preparing the bidding process for the Myingyan Natural Gas Power Project. The project will design, supply, construct, commission, operate, and maintain a combined-cycle, gas-fired power generation plant with a net capacity of 225 MW. The draft PPA and other tender template documents developed by ADB form the basis of the Myingyan bidding process, which is the first competitive and transparent tender for a power plant in Myanmar. The new gas-fired plant will ensure system stability and reliability, and help to avoid future shortages in power generation capacity. The plant will not be affected by seasonal weather patterns, and will be located closer to Myanmar's main load center than the hydroelectric power plants.

5. ADB's Private Sector Operations Department was engaged early in the bidding process to ensure that bidders had the opportunity to optimize their proposals by leveraging the involvement of international financial institutions, like ADB, in the nascent financial environment of Myanmar, where commercial long-term funding is still extremely scarce and perceived political risk is high. ADB reached out to the short-listed bidders after the first round to explore potential assistance with them. The transparent bidding process resulted in a competitive and sustainable tariff for the government in the final round. Sembcorp Utilities Pte. Ltd. (SCU), the winning bidder, was among those that expressed a strong interest in ADB financial assistance, including an A loan, a B loan, and a PRG, to support their bid.

2. Project Design

6. The project is a build–operate–transfer (BOT), PPP transaction for a combined-cycle, natural gas power plant with a net capacity of 225 MW to be located in Myingyan, approximately 500 kilometers (km) north of Yangon and 90 km west of Mandalay. The project has two phases: (i) constructing a 143 MW single-cycle gas turbine; and (ii) upgrading the turbine to a 225 MW combined-cycle plant, following the completion of a steam turbine. The project company will enter into a PPA with Myanma Electric Power Enterprise (MEPE), a state-owned utility, and a BOT agreement with MOEP. Myanma Oil and Gas Enterprise (MOGE) will enter into a gas supply agreement (GSA) with MEPE to supply natural gas for use at the Myingyan power plant. MEPE will pay the value of the gas delivered directly to MOGE. The project will construct associated facilities, such as (i) transmission facilities, including a 3 km transmission line to connect the power plant to the nearby Myingyan 230 kV substation, which dispatches power to the grid; and (ii) a 14 km water supply line from the river intake to the power plant. MEPE will build a 1 km gas pipeline to the existing pipeline.

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3. The Borrower

7. The borrower of the project will be a newly created, special-purpose project company in Myanmar. It will be 80% owned by SCU, a leading developer, owner, and operator of energy and water assets globally, and a wholly owned subsidiary of Sembcorp Industries Pte. Ltd. (SCI); and 20% by MMID Utilities Pte. Ltd. (MMID), a Singaporean company established to partner with SCU in this project (together with SCU, the sponsors).

8. Headquartered in Singapore, SCU has a successful track record of operating independent power producers globally, and has strong operating and technical capabilities. It has over 7,800 MW of power capacity installed or under development, and manages more than 9 million m^3/day of bulk water supply capacity in operation or under development worldwide. SCU accounted for approximately half of SCI's profits in financial year 2014. SCI is listed on the

Singapore Exchange and had a market capital of S$6.5 billion ($4.6 billion) as of 29 October 2015. SCI's largest shareholder is Temasek Holdings (49.5%), Singapore's sovereign wealth fund. No other shareholder owns 5% or more shares in SCI.

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B. Development Impact, Outcome, and Outputs

1. Impact

9. The project will improve the reliability and stability of Myanmar's power supply, while addressing power shortages and helping avoid future brownouts. As the first competitive tender for a power plant in Myanmar that adheres to international best practices and uses a model PPA prepared by an ADB TA, the successful financial close and operation of this project will set a precedent for future tenders. Successful tenders and completion of more independent power producer projects will help strengthen the regulatory and legal framework in the sector, and signal growing stability to the market. The project will increase private sector financing for power through a PPP model. ADB's proposed B loan and PRG will generate long-term financing from international banks for the project, which will set an important market-based benchmark for limited recourse financing in Myanmar. These are aligned with the government target of enhancing energy efficiency and conservation, and ensuring access to affordable energy.

2. Outcome

10. The project's outcome will be the increased provision of competitively priced, reliable baseload electricity to address chronic power cuts and to allow for expansion of the grid. ADB will play an important role in helping Myanmar expand its nascent power sector; the much-needed additional capacity will come from modern gas-fired technology, which emits substantially less carbon dioxide than coal-fired generation.

3. Outputs

11. The project's outputs will comprise (i) the successful completion and commissioning of a 143 MW single-cycle power plant (phase 1), (ii) the successful completion and commissioning of a 225 MW efficient combined-cycle natural gas power plant (phase 2), and (iii) the completion of associated facilities, including a 3 km transmission line. Myingyan is the first competitively tendered power plant in Myanmar according to international standards, and will be ADB's first power generation project in Myanmar since its re-engagement in the country in 2012.

C. Alignment with ADB Strategy and Operations

12. **Consistency with the Midterm Review of Strategy 2020.** The project is consistent with ADB's Midterm Review of Strategy 2020, which identifies inclusive growth and infrastructure development as two of the four strategic priorities to sharpen the focus of ADB operations.[7] Capitalizing on ADB's core strength of financing infrastructure development, the review sets forth that ADB will continue to help expand the supply of energy, promote energy efficiency, and support clean energy. It aims to promote a larger role for the private sector in financing infrastructure development by supporting PPPs. The project is also fully in line with the review's emphasis on strengthening private sector operations in Asian Development Fund recipient countries, and expanding connectivity.

[7] ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific*. Manila.

13. **Consistency with the country partnership strategy.** The project is aligned with ADB's interim country partnership strategy, 2012–2014 for Myanmar.[8] A needs assessment identified the energy sector as a critical development constraint. The assistance is also closely aligned with the country operations business plan, 2015–2017, which extends the validity of the interim country partnership strategy, and focuses on infrastructure investments in energy and PPP through ADB's private sector operations.[9]

14. **Consistency with the sector strategy.** ADB's Energy Policy emphasizes investments in energy efficiency, least-cost supply, private sector participation, and wider access for the poor.[10] ADB supports projects that use efficient technologies, such as combined cycle. Natural gas is a preferred energy source over coal for providing baseload electricity. The energy policy also supports PPP models that enable the participation of the private sector to help achieve efficiencies and reduce reliance on public sector funds.

D. Project Cost and Financing Plan

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E. Implementation Arrangements

15. Table 3 summarizes the implementation arrangements.

Table 3: Summary of Implementation Arrangements

Aspects	Arrangements
Regulatory framework	Since 2013, the Myanmar government has promulgated several laws, such as the Foreign Investment Law, to support economic deregulation and market liberalization. The project was developed as a public–private partnership and awarded a PPA through an international, least-cost, competitive bidding process with advisory support from the Asian Development Bank and the International Finance Corporation.
Management	Project development, construction, and operation will be managed by the borrower, which is controlled by SCU and MMID.
Implementation period	January 2016–November 2017 (commercial operation of phase 1 in June 2017 and commercial operation of phase 2 in November 2017)
Construction arrangements	
Type of arrangement	The project will be constructed under a fixed-price, date-certain, turnkey engineering, procurement, and construction arrangement covering all design, engineering, supply, construction, testing, and commissioning. Phase 1 commissioning of a 143 MW single-cycle plant is scheduled for June 2017; phase 2 commissioning of a 225 MW combined-cycle plant is scheduled for November 2017.
Contractor	Jurong Engineering, a Singapore-based company and a subsidiary of IHI Corporation of Japan, and subsidiaries of SCI and SCU will form a consortium. Jurong, SCI, and SCU have experience with similar project design and construction.
Operations arrangements	
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Operation and maintenance	O&M works will be supported by SCU under a technical services agreement, and by General Electric under a long-term services agreement for the gas turbines. Both SCU and General Electric have a proven track record for O&M of power plants in several countries. The borrower will conduct day-to-day O&M.
Performance monitoring	The borrower will report on key performance indicators, including the outcome and outputs indicators identified in the design and monitoring framework.

MEPE = Myanma Electric Power Enterprise, MMID = MMID Utilities Pte. Ltd., O&M = operation and maintenance, PPA = power purchase agreement, SCI = Sembcorp Industries Pte. Ltd., SCU = Sembcorp Utilities Pte. Ltd.

[8] ADB. 2012. *Interim Country Partnership Strategy: Myanmar, 2012–2014.* Manila.
[9] ADB. 2014. *Country Operations Business Plan: Myanmar, 2015–2017*. Manila.
[10] ADB. 2009. *Energy Policy.* Manila.

Sources: Asian Development Bank and Sembcorp Utilities Pte. Ltd.

F. Projected Financial and Economic Performance

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III. THE PROPOSED ADB ASSISTANCE

A. The Assistance

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B. Value Added by ADB Assistance

16. ADB's participation in the project will add substantial value in the following ways:

(i) As the first competitive tender for a gas-fired independent power producer project in Myanmar, the project is expected to mark a major milestone in the energy sector in terms of transparent and competitive bidding, long-term financing, and efficient technology. ADB's substantial participation will help demonstrate the benefits of increasing Myanmar's power supply through low-cost PPP arrangements, and signal to the government, multinationals, and international financiers that private sector-led infrastructure investments can be undertaken successfully within sectors with sound legal and regulatory frameworks.

(ii) Due to the inherent political risk associated with investing in Myanmar, securing long-term commercial bank financing necessary for large-scale infrastructure investments remains a challenge. ADB's early engagement and ability to catalyze long-term loans from international commercial banks are important factors in encouraging much-needed investment.

(iii) The project illustrates the synergy of ADB's public and private sector operations to undertake a PPP project from project identification and development to project financing seamlessly under a nascent legal and financial environment. The model PPA prepared by the ADB TA was indispensable for the bankability of the project, and ADB's private sector operations is taking a key catalytic role in mobilizing commercial financing. It demonstrates ADB's potential for combining PPP advisory and project financing to meet increasing infrastructure demand in Asia and the Pacific.

(iv) ADB's assistance will help support an alternative to coal-fired generation to generate significant power at competitive rates. The project will comply with ADB safeguard requirements, which will ensure long-term sustainable operation of the project, and is expected to set a new environmental and social standard in the energy sector in Myanmar.

C. Risks

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IV. POLICY COMPLIANCE

A. Safeguards and Social Dimensions

17. The project is classified category A for the environment under the ADB Safeguard Policy Statement (2009). The environmental and social impact assessment identifies the potential

environmental and social impacts and risks of the project, and assesses the cumulative air quality impacts in the airshed.[11]

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18. The project is classified as B for involuntary resettlement and C for impacts on indigenous peoples pursuant to the ADB Safeguard Policy Statement. The gas power plant will be located in an 11.6-hectare plot, which is part of a 280-hectare steel mill site acquired by the Ministry of Industry during 1998–2000.

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No indigenous communities live within the project influence area, and therefore no impacts on indigenous peoples are expected.

19. During construction, civil work contractors are expected to provide work opportunities for the local community. The borrower will comply with national labor laws, and will take measures to comply with the internationally recognized core labor standards pursuant to ADB's Social Protection Strategy (2001).[12] The borrower will report regularly to ADB on (i) its (and its contractors') compliance with such laws and (ii) the measures taken. Information disclosure and consultation with affected people will be conducted in accordance with ADB requirements.[13]

B. Anticorruption Policy

20. SCU and MMID were advised of ADB's policy of implementing best international practice relating to combating corruption, money laundering, and the financing of terrorism. ADB will ensure that investment documentation includes appropriate provisions prohibiting corruption, money laundering, and the financing of terrorism; and remedies for ADB in the event of noncompliance.[14]

C. Investment Limitations

21. The proposed loans and PRG are within the medium-term, country, industry, group, and single-project exposure limits for nonsovereign investments.

D. Assurances

22. Consistent with the Agreement Establishing the Asian Development Bank (the Charter),[15] ADB will proceed with the proposed assistance upon establishing that the Government of Myanmar has no objection to the proposed assistance to the borrower. ADB will enter into suitable finance documentation, in form and substance satisfactory to ADB, following approval of the proposed assistance by the ADB Board of Directors.

[11] Sembcorp Utilities Pte. Ltd. 2015. *Environmental and Social Impact Assessment: Myingan Natural Gas Power Project in Myanmar.* Manila: ADB.
[12] ADB. 2001. *Social Protection Strategy.* Manila.
[13] Summary Poverty Reduction and Social Strategy, and Safeguards and Social Dimensions Summary.
[14] According to the 29 July 2015 public statement of the Financial Action Task Force, Myanmar is regarded as a jurisdiction with strategic deficiencies that it has not made sufficient progress in addressing. The integrity due diligence did not identify any concerns relating to the involvement of SCU or MMID in money laundering or terrorism financing.
[15] ADB. 1966. *Agreement Establishing the Asian Development Bank.* Manila.

V. RECOMMENDATION

23. I am satisfied that the proposed A loan, B loan, and political risk guarantee would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve

(i) the loan of up to $152,200,000, comprising (i) an A loan of up to $42,200,000 from ADB's ordinary capital resources and (ii) a B loan of up to $110,000,000; and

(ii) the political risk guarantee of up to $110,000,000 to commercial lenders;

for the Myingyan Natural Gas Power Project in Myanmar, with such terms and conditions as are substantially in accordance with those set forth in this report, and as may be reported to the Board.

Takehiko Nakao
President

16 November 2015

DESIGN AND MONITORING FRAMEWORK

Impact the Project is Aligned with:

Enhance energy efficiency and conservation, and ensure access to affordable energy (Government of Myanmar, 2013)[a]

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome			
Competitively priced, cleaner power sustainably generated by an IPP	a. More than 1,500 gigawatt-hours of power dispatched to MEPE per annum by 2018 (2014 baseline: 0) b. At least 40 full-time equivalent local jobs created for operation by 2018 (2014 baseline: not applicable) c. Direct contribution (corporate tax) to government revenues amounts to at least $2 million per annum by 2022 (2014 baseline: 0)	a–b. Annual development effectiveness monitoring reports by the borrower c. Annual audited financial statements of the borrower	Unexpected interruption of gas supply and water supply adversely affects power generation. Unexpected legal and/or regulatory risk materializes and adversely affects operation of the plant.
Outputs			
1. Power plants installed	1a. 143 MW of single-cycle power capacity commissioned by June 2017 (2014 baseline: not applicable) 1b. 225 MW of combined-cycle power capacity commissioned by November 2017 (2014 baseline: not applicable) 1c. A 3-kilometer transmission line connecting the plant to the substation completed by June 2017 (2014 baseline: not applicable)	1a–c. Company annual technical reports and completion certificate from lenders' technical advisor	Price of raw material increased more than budgeted
2. Local employment generated	2a. 400 full-time equivalent local jobs created during construction by 2017 (2014 baseline: not applicable) 2b. Local purchase of goods and services amounts to more than MK24 billion ($19 million equivalent) during construction (2014 baseline: not applicable)	2a–b. Annual development effectiveness monitoring reports by the borrower	

Key Activities with Milestones
Outputs 1–2: Construction and operation of an IPP utilizing indigenous gas 1.1. Financial close achieved by Q1 2016 1.2. Environmental management plan (including regular engagement with community stakeholders) in place by Q1 2016 1.3. Commissioning of single-cycle power plant by June 2017 1.4. Commissioning of combined-cycle power plant by November 2017 1.5. Operation as scheduled
Inputs
Asian Development Bank: Up to $42.2 million direct A loan Up to $110 million B loan Up to $110 million PRG [CONFIDENTIAL INFORMATION DELETED]
Assumptions for Partner Financing
Not applicable.

MEPE = Myanma Electric Power Enterprise, MK = Myanmar kyat, MW = megawatt, IPP = independent power producer, PRG = political risk guarantee, Q = quarter.
[a] Government of Myanmar. 2013. *Framework for Economic and Social Reforms, 2012–2015*. Naypyidaw.
Source: Asian Development Bank.