



Report and Recommendation of the President to the Board of Directors

Project Number: 51273-001
October 2017

Proposed Equity Investment and Administration of Equity Investment Gulf Energy Development Public Company Limited Cornerstone Investment in Leading Independent Power Producer Project (Thailand)

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 1 October 2017)

Currency unit	–	baht (B)
B1.00	=	\$0.030
\$1.00	=	B33.32

ABBREVIATIONS

ADB	–	Asian Development Bank
CAGR	–	compound annual growth rate
EGAT	–	Electricity Generating Authority of Thailand
E&S	–	environmental and social
EHS	–	environment, health, and safety
ESMS	–	environmental and social management system
Gemstone	–	Gulf Energy Development Public Company Limited
IPP	–	independent power producer
IPO	–	initial public offering
LEAP	–	Leading Asia's Private Sector Infrastructure Fund
MW	–	megawatt
PEA	–	Provincial Electricity Authority
PPA	–	power purchase agreement
SPP	–	small power producer
VSPP	–	very small power producer

NOTES

- (i) The fiscal year of Gulf Energy Development Public Company Limited ends on 31 December.
- (ii) In this report, "\$" refers to United States dollars.

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PROJECT AT A GLANCE

1. Basic Data		Project Number: 51273-001	
Project Name	Cornerstone Investment in Leading Independent Power Producer Project	Department /Division	PSOD/PSIF2
Country	Thailand		
Investee	Gulf Energy Development Public Company Limited		
2. Sector		ADB Financing (\$ million)	
✓ Energy	Conventional energy generation		75.00
		Total	75.00
3. Strategic Agenda		Climate Change Information	
Inclusive economic growth (IEG)	Pillar 1: Economic opportunities, including jobs, created and expanded	CO ₂ reduction (tons per annum)	267,000
Environmentally sustainable growth (ESG)	Global and regional transboundary environmental concerns	Climate Change impact on the Project	Low
4. Drivers of Change		Gender Equity and Mainstreaming	
Private sector development (PSD)	Promotion of private sector investment	No gender elements (NGE)	✓
5. Poverty and SDG Targeting		Location Impact	
Geographic Targeting	No	Nation-wide	High
Household Targeting	No		
SDG Targeting	Yes		
SDG Goals	SDG7		
6. Nonsovereign Operation Risk Rating - NA			
7. Safeguard Categorization Environment: A Involuntary Resettlement: B Indigenous Peoples: B			
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		75.00	
Nonsovereign EI Participation: Ordinary capital resources		75.00	
B-Loans		0.00	
None		0.00	
Official Cofinancing^a		45.00	
Leading Asia's Private Sector Infrastructure Fund (Full ADB Administration)		45.00	
Others^b		0.00	
Total		120.00	

^a Concessional financing from external sources.

^b Derived by deducting ADB financing, B Loans and Official Cofinancing from Project Total Cost.

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed equity investment of up to \$75,000,000 (or its equivalent in baht) to Gulf Energy Development Public Company Limited (Gemstone) for the Cornerstone Investment in Leading Independent Power Producer Project in Thailand. The report also describes the proposed administration of an equity investment of up to \$45,000,000 (or its equivalent in baht) to be provided by the Leading Asia's Private Sector Infrastructure Fund (LEAP),¹ and if the Board approves the proposed equity investment, I, acting under the authority delegated to me by the Board, approve the administration of the equity investment.

II. THE PROJECT

A. Project Identification and Description

2. **Project identification.** Since the discovery of large reserves in the late 1970s, natural gas from the Gulf of Thailand has provided the Thai economy with an abundant, low-cost, and secure source of energy. Approximately 65% of Thailand's electricity is produced from natural gas and over 50% of demand for electricity in the country is attributed to the industrial sector. Natural gas has been an integral factor in fueling Thailand's successful industrial transformation into a major export-orientated manufacturing hub within Southeast Asia. Thailand has become a world-class supplier of machinery, consumer electronics, high-tech components, and automobiles—all of which are well integrated into regional and global production networks. Thailand promotes investment and growth in its industrial sector by establishing industrial parks at strategic locations in the country with fully equipped infrastructure facilities and services such as roads, water supply, waste treatment, telecommunications, and electricity supply. Reliable and competitively priced electricity is supplied to industrial customers through Thailand's distributed generation model, whereby power plants are located on or near the industrial estates. Building power plants close to the load where electricity is consumed obviates the need for building redundant transmission lines and reduces the amount of electricity that is lost when it is delivered over a long distance.

3. The fuel of choice under the distributed generation model has been natural gas, given its high efficiency and added flexibility in power plant sizing and delivery. Natural gas can serve as baseload, intermediate, and peaking electrical power supply, meeting industrial demand when and as needed. The electricity generated from natural gas also produces excess heat to produce steam, which can be utilized by industrial customers for their manufacturing processes. Without this residual heat source, manufacturers would require additional boiler capacity on site that would consume more fuel, needlessly adding emissions in the process. Waste heat can also be used in absorptive chillers to provide year-round cooling services to industrial customers, known as trigeneration or combined heat, power, and cooling. Natural gas generation also emits substantially less greenhouse gas emissions, dust, and ash compared with coal-fired power plants, the main alternative fuel choice for industrial parks in Thailand. By utilizing a distributed generation model with combined-cycle and cogeneration technologies with heat recovery steam generators, electricity is produced more efficiently and in a more sustainable manner, providing cleaner air quality and lower carbon footprint within the industrial centers of Thailand.

4. Thailand's rapid industrialization and development fueled by natural gas have increased productivity, job creation, and income for the country. However, due to declining reserves and greater reliance on imports, Thailand must now reprioritize its strategic use of natural gas within

¹ Financing partner: Japan International Cooperation Agency.

its energy fuel mix from a dominant to a transitioning fuel source to meet its growing demand. Over the next 20 years, natural gas will play a central role in helping Thailand transition to a low-carbon economy. It will continue to be a significant component of Thailand's overall fuel mix and it will continue to be the preferred fuel choice over coal in providing electricity to the country's industrial base. Natural gas will also play a supporting role in helping the country meet its renewable energy targets. By 2036, Thailand plans to integrate 3,002 megawatts (MW) of wind and 6,000 MW of solar power generation into the national grid. Natural gas is optimally suited to complement intermittent electricity generation from wind and solar through its ability to rapidly scale production up or down on short notice to meet load requirements. This allows the system operator to balance load in a more effective and efficient manner that is not possible with coal and nuclear or seasonal hydro imports.

5. The Ministry of Energy implements its distributed generation model for industrial users through the small power producers (SPPs) program and, to a lesser extent, through the independent power producers (IPPs) and very small power producers (VSPPs) programs. The IPP program, with installed capacities greater than 90 MW, the SPP program with installed capacities in the 10 MW–90 MW range, and the VSPP program with installed capacities less than 10 MW, allow private sector developers to build, own, and operate power plants and enter into a power purchase agreement (PPA) with the state-owned Electricity Generating Authority of Thailand (EGAT) in the case of the IPP and SPP programs, and with the Provincial Electricity Authority (PEA) or Metropolitan Electricity Authority in the case of the VSPP program. The Ministry of Energy allows for any additional capacity from power plants to be directly sold to industrial customers through energy supply agreements. SPPs can also sell their excess steam to industrial customers that are located within close proximity to the power plant. Power plants located within industrial estates provide the power system with added reliability and security of supply for electricity consumers.

6. The proposed investment in Gemstone, one of the largest IPPs in Thailand, supports the general expansion of power generation in the country, especially in servicing industrial consumers. From 2007 to 2017, Gemstone has been highly successful in securing the largest pipeline of IPP and SPP projects in Thailand through the government's competitive solicitation and proposals for new generation. At this time, the company is seeking an initial public offering (IPO) to raise funds in support of its current pipeline of projects and to expand its business into new growth opportunities. Raising funds through an IPO provides the private sector with greater access to capital in an efficient and cost-effective manner, enabling it to undertake more and larger investments in infrastructure projects. Gemstone is one of the largest private sector clients of the Asian Development Bank (ADB) with a longstanding relationship since 2007 when ADB supported the company during its first IPP bidding process.²

7. **Project design.** Gemstone has a substantial number of projects under development and in construction, including (i) 2 gas-fired IPPs (5,570 MW), (ii) 11 gas-fired SPPs (1,427 MW), and (iii) 1 biomass SPP (25 MW).

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² ADB provided long-term debt for two of Gemstone's independent power producer (IPP) projects, the Nong-Saeng Natural Gas Power Project and the Ayudhaya Natural Gas Power Project (1,600 MW each), which represented the first project financing arrangements in Thailand with loan tenures of 23 years. The Nong-Saeng Project was recognized as one of the top 40 Public-Private Partnerships in Emerging Markets by the International Finance Corporation and Infrastructure Journal, and the Ayudhaya Project received Project Finance Deal of the Year (2012) from Project Finance International.

8. Thailand is the second largest energy consumer in Southeast Asia, and over the next 20 years the country must retire approximately 24,000 MW of capacity due to aging and inefficient plants, and add approximately 51,500 MW of new capacity between 2016 and 2036 to meet growing demand. Thailand will effectively more than double its current installed capacity of 30,218 MW with new power generation. In addition to its current projects under development and construction, Gemstone will continue to expand its power project portfolio domestically through tenders and proposals for the IPP, SPP, and VSPP programs. The company will also seek growth opportunities to expand its renewable energy generation profile, and explore other opportunities outside of Thailand where it can leverage its proven track record in Thailand. This will help diversify the company's source of revenue and sustain the growth of its business operations.

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9. **Investee.** Gemstone's business has been primarily focused on developing natural gas power generation in Thailand under the IPP and SPP programs. Currently, 99% of the company's portfolio consists of natural gas power generation, and the majority of the projects are located in or near industrial estates in Thailand. Since 2007, the company has submitted and won bids and proposals under the IPP, SPP, and VSPP solicitation programs in Thailand for a total of 28 projects, of which 23 are based within industrial estates.

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10. In line with the government strategy to transition towards a low-carbon economy, Gemstone has begun developing renewable energy projects. The company currently has four rooftop-solar solar projects in operation located in industrial parks and is currently developing a biomass power project in Southern Thailand. The company also acquired a 9.09% equity interest in SPCG,³ one of the largest solar power companies in Thailand with 260 MW of installed generation. As part of Gemstone's growth and diversification strategy, the company will pursue more renewable energy generation projects in the future.

11. Integrity due diligence was conducted.⁴ No significant or potentially significant integrity risks were identified. Enhanced tax integrity due diligence was also conducted.⁵ ADB's review of the entity does not give ADB cause to believe that such entity has been established or is being used for cross-border tax evasion, money laundering, or terrorism financing in the jurisdictions involved in the project.

B. Development Impact, Outcome, and Outputs

12. **Impact.** The project is aligned with the following impact: Thailand's installed power generation capacity from natural gas utilizing combined-cycle and cogeneration technologies increased.

13. **Outcome.** The project will increase the supply of affordably priced and clean power to the domestic grid.

³ SPCG Public Company Limited.

⁴ ADB. 2003. *Enhancing the Asian Development Bank's Role in Combating Money Laundering and the Financing of Terrorism*. Manila.

⁵ ADB. 2016. *Anticorruption Policy: Enhancing the Role of the Asian Development Bank in Relation to Tax Integrity*. Manila. Further information is provided in the Integrity and Tax Due Diligence Disclosure (accessible from the list of linked documents in Appendix 2).

14. **Outputs.** The outputs will be additional power plants installed or developed, and local employment generated.

C. Alignment with ADB Strategy and Operations

15. **Consistency with ADB strategy and country strategy.** The project is consistent with ADB's Midterm Review of Strategy 2020,⁶ which reaffirmed ADB's support for (i) the role of the private sector in meeting growing demand for clean energy in the region; (ii) poverty reduction by supporting rapid and inclusive growth; (iii) capitalizing on ADB's operating strengths in infrastructure development and finance; and (iv) supporting public-private partnership initiatives.

16. The project is consistent with ADB's latest country partnership strategy for Thailand, 2013–2016, as well as its country operations business plan, 2017–2019, both of which prioritize: (i) increasing clean power generation capacity, (ii) increasing efficiency of energy generation, (iii) public-private partnerships, and (iv) development of capital markets.

17. **Consistency with sector strategy and relevant ADB operations.** The project is consistent with ADB's Energy Policy,⁷ which gives emphasis to investments in energy efficiency, least-cost supply, private sector participation, and wider access to the poor. ADB supports projects that utilize efficient technologies, such as combined cycle, and projects that incorporate state-of-the-art emission control equipment.

D. Financing Plan

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E. Implementation Arrangements

18. Table 2 summarizes the implementation arrangements.⁸

Table 2: Summary of Implementation Arrangements

Aspects	Arrangements
Regulatory framework	The IPP and SPP programs allow for private developers to build, own, and operate power generation projects in the 10 MW–90 MW installed capacity range in the case of SPP, and greater than 90 MW in the case of IPPs. IPP and SPP projects enter into long-term PPAs with EGAT for up to 25 years. The VSPP program allows for private developers to build, own, and operate small power projects up to 10 MW of installed generating capacity. VSPPs sell their electricity to the state-owned distribution utilities—Metropolitan Electricity Authority, and Provincial Electricity Authority—under 5-year automatically renewable PPAs.
Offtake arrangements	Different tariff structures are applied based on the type of electricity-generating program (IPP, SPP, or VSPP), whether the contract is firm or non-firm (non-firm meaning minimum offtake obligations), and whether the project utilizes conventional or renewable energy. IPP and firm SPP power projects are entitled to receive an availability payment (called capacity payment in the case of SPP) for making its contracted power generation capacity available to EGAT. IPP and firm SPPs are also entitled to receive an energy payment to cover fuel costs and other variable costs. Non-firm renewable energy SPPs receive the wholesale base rate with fuel adjustment in addition to a fixed feed-in tariff. In addition to PPAs with EGAT, gas-fired SPPs may enter into energy supply agreements with industrial users for approximately 20%–30% of their installed capacity with terms of up to 15 years. Pricing is generally discounted from the Provincial Electricity Authority retail tariff to incentivize

⁶ ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific*. Manila.

⁷ ADB. 2009. *Energy Policy*. Manila.

⁸ Details of Implementation Arrangements (accessible from the list of linked documents in Appendix 2.).

Aspects	Arrangements
	industrial users. SPPs may also sell residual steam and chilled water to industrial users under steam supply agreements and chilled water supply agreements with terms of up to 15 years.
Fuel supply arrangements	IPP and SPP projects that utilize natural gas enter into standard gas supply agreements with PTT. PTT is a fully integrated oil and gas company in Thailand that is 51% owned by the Ministry of Finance and is the sole supplier of natural gas in Thailand. The gas supply agreements are effective from the signing date and continue until 25 years after the commercial operation dates of the respective power plant, thereby matching the tenor of the PPAs. Fuel price risk is fully passed on to EGAT under the PPAs, leaving the company to manage the operational and financing risks of the project.
Construction	CONFIDENTIAL INFORMATION DELETED
Operation and maintenance	CONFIDENTIAL INFORMATION DELETED

EGAT = Electricity Generating Authority of Thailand; EPC = engineering, procurement, and construction; IPP = independent power producer; MW = megawatt; PTT = PTT Public Company Limited; PPA = power purchase agreement; SPP = small power producer; VSPP = very small power producer.

Source: Gulf Energy Development Public Company Limited.

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

19. ADB has been requested by the company to participate in its IPO as a cornerstone investor. As a cornerstone investor, ADB will help facilitate the book-building process by reassuring other potential investors of the merits of the investment. ADB will also help strengthen its corporate-wide environmental and social management system (ESMS) in line with ADB's Safeguard Policy Statement (2009) and good international practice. Companies engaged in large infrastructure projects depend on substantial amounts of capital from both domestic and international sources. Financiers and investors are increasingly cognizant of the commercial implications associated with environmental and social risks as well as reputational risks associated with their investment. The link between strong financial performance and a company's corporate governance and ability to manage environmental and social risks of its business are becoming more evident in ensuring the long-term corporate sustainability of a company. Providers of capital are increasingly rewarding companies that are accountable, transparent, and engage stakeholders and the communities in which they operate.

20. For companies that develop large-scale infrastructure projects in developing countries, an ESMS can also provide a strategic competitive advantage in securing new projects, raising capital, and improving brand image and reputation. These companies can achieve better growth opportunities, cost savings, and boost their bottom line profitability. ADB's Safeguard Policy Statement is globally recognized as a leading benchmark for good environmental and social management, and the company will adopt an ADB-compliant ESMS before ADB's cornerstone

investment in the IPO.⁹ The ESMS will strengthen Gemstone's capacity to mitigate environmental and social risks, improve relations with its stakeholders, and achieve greater development impact in the countries in which it operates. Further, the ESMS is also expected to help the company become ISO 14001 certified.

C. Risks

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IV. POLICY COMPLIANCE

A. Safeguards and Social Dimensions

21. The investment is a general corporate finance transaction and is classified as category A for environment and B for involuntary resettlement and indigenous peoples. The potential environmental and social impacts of the investment have been identified and effective measures to avoid, minimize, mitigate, and compensate for the adverse impacts are incorporated into the safeguard reports and plans.

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22. A corporate audit was undertaken by an external third party in accordance with the requirements in ADB's Safeguard Policy Statement.¹⁰ The corporate audit assessed that the environment, health, and safety (EHS) function is embedded in the business processes of the company and works very closely with various teams (planning, development, and operations) to ensure both statutory compliance and management of risks. The EHS teams are staffed with dedicated and qualified personnel who have developed a comprehensive set of systems and procedures which govern the overall EHS management at both corporate and subproject levels. Monitoring, reporting, and documentation of EHS performance are tracked and integrated into the management review system and process of the company. In addition, the company's subprojects were also certified for International Organization for Standardization systems, demonstrating its willingness to adopt and move towards meeting international standards requirements.

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23. These and other audit findings and recommendations have been documented and agreed in a corrective action plan. In line with the requirements of the corrective action plan, Gemstone will update its ESMS and align it with ADB's Safeguard Policy Statement requirements. The environment and social requirements in the ESMS (categorization checklists, initial environmental examination, and environmental impact assessment reports, social audit report, disclosure, and internal as well as third-party reporting) will be mandatory for all future subprojects utilizing the ADB proceeds. The company will also report on a semiannual basis for projects under construction, and on an annual basis thereafter to ADB on ongoing compliance to ESMS and ADB's Safeguard Policy Statement requirements.

24. Gemstone will comply with national labor laws and, pursuant to ADB's Social Protection Strategy (2001), will take measures to comply with the internationally recognized core labor

⁹ Gemstone will be required to apply the ESMS in all projects that utilize proceeds from ADB's investment, and the company will endeavor to apply the ESMS in all other projects in its portfolio.

¹⁰ The corporate and subprojects audit was undertaken by Environmental Resource Management, a qualified and experienced independent expert.

standards.¹¹ Gemstone will report on an annual basis to ADB on (i) its compliance with such laws, and (ii) the measures taken. Information disclosure and consultation with affected people will be conducted in accordance with ADB requirements.¹²

B. Anticorruption Policy

25. Gemstone was 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 the investment documentation includes appropriate provisions prohibiting corruption, money laundering, and the financing of terrorism, and remedies for ADB in the event of noncompliance.

C. Investment Limitations

26. The proposed equity investment is within the medium-term, country, industry, group, and single-project exposure limits for nonsovereign investments.

D. Assurances

27. Consistent with the Agreement Establishing the Asian Development Bank,¹³ ADB will proceed with the proposed assistance upon establishing that the Government of Thailand has no objection to the proposed assistance to Gemstone. 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.

V. RECOMMENDATION

28. I am satisfied that the proposed equity investment would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the equity investment of up to \$75,000,000 (or its equivalent in baht) from ADB's ordinary capital resources to the Gulf Energy Development Public Company Limited for the Cornerstone Investment in Leading Independent Power Producer Project in Thailand, 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

6 October 2017

¹¹ ADB. 2003. *Social Protection*. Manila (adopted in 2001).

¹² Summary Poverty Reduction and Social Strategy; and Safeguards and Social Dimensions Summary (accessible from the list of linked documents in Appendix 2).

¹³ ADB. 1966. *Agreement Establishing the Asian Development Bank*. Manila.

DESIGN AND MONITORING FRAMEWORK

Impact the Project is Aligned with

Thailand’s installed power generation capacity from natural gas utilizing combined-cycle and cogeneration technologies increased^a

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
<p>Outcome</p> <p>Affordably priced and clean power to the domestic grid increased</p>	<p>CONFIDENTIAL INFORMATION DELETED</p>	<p>a–c. Gemstone’s annual development effectiveness monitoring reports</p>	<p>Weak power demand caused by adverse macroeconomic shock</p>
<p>Outputs</p> <p>1. Additional power plants installed or developed</p> <p>2. Local employment generated</p>	<p>CONFIDENTIAL INFORMATION DELETED</p>	<p>1–2. Gemstone’s annual development effectiveness monitoring reports</p>	<p>Delayed commissioning due to force majeure events</p>
<p>Key Activities with Milestones</p> <p>Outputs 1–2: Additional power plants installed or developed and local employment generated</p> <p style="text-align: center; color: red;">CONFIDENTIAL INFORMATION DELETED</p>			
<p>Inputs</p> <p>Asian Development Bank equity: Up to \$75 million</p> <p>Leading Asia’s Private Sector Infrastructure Fund equity: Up to \$45 million</p>			
<p>Assumptions for Partner Financing</p> <p>Leading Asia’s Private Sector Infrastructure Funding subject to approval by the Japan International Cooperation Agency</p>			

^a Government of Thailand, Ministry of Energy. 2015. *Thailand Power Development Plan, 2015–2036*. Bangkok.

^b Power production by 2024 (9.3 gigawatt-hours) x avoided emission (28.7 grams of carbon dioxide per kilowatt-hour). Source: Asian Development Bank.