Report and Recommendation of the President to the Board of Directors

Project Number: 47937
June 2014

Proposed Administration of Loan
PT Supreme Energy Rantau Dedap
Rantau Dedap Geothermal Development Project (Phase 1)
(Republic of Indonesia)

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 30 May 2014)

Currency unit	–	rupiah (Rp)
Rp1.00	=	$0.0001
$1.00	=	Rp11,605.00

ABBREVIATIONS

ADB	–	Asian Development Bank
BVGL	–	business viability guarantee letter
CTF	–	Clean Technology Fund
GHG	–	greenhouse gas
MW	–	megawatt
PLN	–	Perusahaan Listrik Negara (National Electricity Utility)
PPA	–	power purchase agreement

NOTES

(i) In this report, "$" refers to US dollars.

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CONTENTS

PROJECT AT A GLANCE

1. Project Name: Rantau Dedap Geothermal Development Project **2. Project Number:** 47937

3. Country: Indonesia **4. Department/Division:** Private Sector Operations Department
Infrastructure Finance Division 2

5. Sector Classification:

Sectors	Primary	Subsectors
Energy	✓	Renewable energy

6.Thematic Classification:

Themes	Primary	Subthemes
Environmental sustainability	✓	Global and regional transboundary environmental concerns
Economic growth		Widening access to markets and economic opportunities
Private sector development		Private sector investment

6a. Climate Change Impact:

Adaptation	
Mitigation	✓
Not applicable	

6b. Gender Mainstreaming:

Gender equity theme	
Effective gender mainstreaming	
Some gender elements	
No gender elements	✓

7. Targeting Classification:

	Targeted Intervention		
General Intervention	Geographic dimensions of inclusive growth	Millennium development goals	Income poverty at household level
✓			

8. Location Impact:

Rural	
Urban	
National	High
Regional	

9. Nonsovereign Operation Risk Rating : Not applicable

10. Safeguard Categorization:

Environment	B
Involuntary resettlement	A
Indigenous peoples	B

11. ADB Financing:

Sovereign/Nonsovereign	**Modality**	**Source**	**Amount** ($ million)
Not applicable	--	--	--

12. Cofinancing:

Financier	**Category**	**Amount** ($ million)	**Administration Type**
ADB Clean Technology Fund	Official Loan	50.0	Full
Total		50.0	

13. Counterpart Financing: Not Applicable

14. Aid Effectiveness: Not Applicable

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed administration of a loan of up to $50 million to be provided by the ADB Clean Technology Fund[1] to Supreme Energy Rantau Dedap for the Rantau Dedap Geothermal Development Project (Phase 1) in Indonesia.

II. THE PROJECT

A. Project Identification and Description

1. Project Identification

2. **Identifying a clean energy path.** A more secure and sustainable future for Indonesia is contingent on increased access to clean energy. The country demonstrated strong economic performance throughout the global recession, with annual gross domestic product growth averaging 6% during 2009–2012.[2] If this growth continues, demand for electricity is projected to rise by more than 8% per annum until 2029. Since Indonesia currently uses coal and oil to produce 65% of its electricity and fuel its economic growth, a failure to diversify into cleaner energy sources for power generation will magnify the country's reliance on fossil fuels, constrain its ability to meet rising electricity demand, increase its contribution to global greenhouse gases (GHGs), and heighten exposure to commodity risk.

3. The Government of Indonesia recognizes the economic imperative of sustainable growth and aims to increase the share of renewable energy in the country's primary energy supply from 5% in 2010 to 25% by 2025 and achieve a reduction in GHG emissions of 41% by 2020.[3] Indonesia is endowed with several renewable energy options that can help achieve these targets, including wind, solar, geothermal, and biomass. However, geothermal energy is particularly suited to support Indonesia's more sustainable future:

(i) Geothermal power comes from thermal energy that is naturally generated in the earth and most accessible and abundant near tectonic plate boundaries.[4] Due to its location at the edge of the Pacific plate, Indonesia has over 29,000 megawatts (MW) of geothermal resources, which is equivalent to 40% of the global geothermal resource base.[5]

(ii) Geothermal power plants are reliable and demonstrate high capacity factors. Therefore, they can contribute a sizable portion of base-load power, unlike intermittent renewable energy sources such as wind or solar, and contribute to a more secure energy mix.

(iii) Geothermal power plants typically emit less than 10% of the GHG emitted by fossil fuel thermal plants, and thereby provide an effective means for Indonesia to achieve both domestic and international climate change mitigation objectives.

(iv) Power generation costs of large geothermal power plants in Java and Sumatra are less than the country's average power generation cost. Geothermal sector development can therefore help improve the long-term financial health of Perusahaan Listrik Negara (PLN), the national electricity utility, while reducing Indonesia's reliance on fossil fuels.[6]

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[1] The ADB Clean Technology Fund is financed by the Clean Technology Fund and administered by ADB.
[2] Bank of Indonesia. 2013. *Indonesian Financial Statistics: Real Sector*. Jakarta.
[3] Badan Perencanaan dan Pembangunan Nasional (BAPPENAS). 2010. *Presidential Regulation for a National Action Plan for Reducing Greenhouse Gas Emissions (Rencana Nasional Penurunan Emisi Gas Rumah Kaca).* Jakarta.
[4] In a geothermal power plant, high-pressure steam from a production wellhead powers a turbine to generate energy.
[5] Partnership International, for BAPPENAS. 2013. *The Indonesia Geothermal Handbook.* Jakarta.
[6] PLN. 2013. *2012 Statistik PLN*. Jakarta.

4. Indonesia has a geothermal project pipeline of 3,200 MW, which accounts for 24% of the capacity of geothermal projects now planned globally.[7] Despite the compelling opportunity presented by untapped geothermal resources, less than 5.0% of the country's total geothermal potential has been developed. Indonesian geothermal regulation has substantially improved since 2003, but translating the immense geothermal opportunity into reality is challenging due to the risks of proving and managing the geothermal resource. The investment needed to develop the country's full geothermal potential will only materialize when actual and perceived risks are decoupled and reduced through the successful financing, implementation, and operation of projects with the demonstrative capacity to initiate market transformation.

5. **Recent sector development.** The Asian Development Bank (ADB) involvement in the 320 MW Sarulla Geothermal Power Development Project has placed ADB at the forefront of accelerating private sector investment in geothermal development in Indonesia.[8] The Sarulla project is the first large-scale, private geothermal project to be commercially financed in Indonesia in over 10 years. Nonetheless, for landmark projects like Sarulla to achieve their full demonstration impact, more projects must overcome critical bottlenecks in the geothermal project pipeline further upstream. The highest level of risk for a geothermal developer is during early project development and exploration, when the renewable energy resource has not yet been proven. Experienced developers in Indonesia are challenged to justify their investments when faced with full exposure to the high upfront costs of a drilling program and the inequitable risk–reward framework in the geothermal sector.[9] The lack of an early-stage risk sharing mechanism remains a fundamental obstacle to geothermal power expansion in Indonesia and around the world. For ADB to effectively kick-start the Indonesian geothermal sector, it must not only facilitate the availability of long-term commercial financing, but also clear the way for new project development by initially sharing and mitigating some development risk.

6. **Clean Technology Fund.** As one of the four windows under the $8 billion global Climate Investment Funds, the Clean Technology Fund (CTF) is a major partner in ADB's efforts to mitigate GHG emissions and accelerate geothermal development in Indonesia.[10] CTF was established in 2008 and promotes financing for the deployment of low-carbon technologies with significant potential for long-term reduction of GHG emissions through projects implemented by the multilateral development banks. ADB is one of five multilateral development banks endorsed by the bilateral financing partners that contribute funds to the CTF.

7. The proposed project will be ADB's second loan from the $150 million ADB Private Sector Geothermal Energy Program, which was approved and endorsed by the CTF trust fund committee in 2013.[11] The program specifically seeks to share a portion of the upfront risks of

[7] Bloomberg New Energy Finance. 2013. Q2 2013 Geothermal Market Outlook. New York. This includes projects that have been publicly announced, have been permitted, have begun drilling and/or are under construction.

[8] ADB. 2013. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Administration of Loans to Sarulla Operations Limited, Sarulla Power Asset Limited, Kyuden Sarulla Private Limited, OrSarulla Incorporated, and PT Medco Geopower Sarulla. Sarulla Geothermal Power Development Project in Indonesia.* Manila.

[9] Due to drilling programs, capital costs for geothermal plants can be more than three times those for conventional fossil fuel plants. In addition, future development of the geothermal market is unlikely to benefit from the dramatic, technology-driven cost reductions that have recently occurred in the solar, wind, and natural gas sectors. See Geothermal Overview (accessible from the list of supplementary linked documents in Appendix 2).

[10] ADB. 2009. *Establishment of the ADB Clean Technology Fund and the ADB Strategic Climate Fund*. Manila.

[11] The trust fund committee approved the program pursuant to the Financial Procedures Agreement entered into by ADB and the International Bank for Reconstruction and Development (as trustee of the trust fund for CTF) on 18

geothermal drilling and exploration faced by private developers. Under the program framework, ADB selects a set of private sector subprojects according to CTF investment principles, program criteria, and minimum loan terms and conditions approved by the trust fund committee.

8. The relatively high risks of the early-stage loan product were explained to the committee when ADB sought program approval, and the minimum terms and conditions of this loan product have been endorsed. While concessional CTF funds have traditionally been deployed as parallel project finance loans, the CTF mandates the implementing agencies to identify the most effective structures to mitigate key sector risks, pilot-test alternative financing modalities, and disseminate project lessons, all while maximizing the leverage of other investors and lenders. By filling the financing gap and galvanizing activity further upstream, the proposed assistance will demonstrate the viability of geothermal resources in Indonesia and increase the likelihood of attracting the commercial investment required for the geothermal sector expansion.

2. Project Design

9. The proposed 240 MW Rantau Dedap Geothermal Development Project (Phase 1) is an ideal opportunity for ADB and CTF to play an instrumental role in developing the next generation of greenfield geothermal projects in Indonesia through pilot-testing of an innovative, early-stage financing product. The project is located about 225 kilometers southwest of Palembang in South Sumatera, Indonesia. Phase 1 constitutes the initial geothermal resource exploration, involving the drilling of five wells to better ascertain steam reservoir characteristics and capacity. A separate Phase 2 project will follow to complete drilling of production and injection wells, and power plant construction. Phase 2 will be financed through a traditional limited-recourse, long-term financing structure.

10. The project has been prioritized under PLN's long-term power development plan and the second 10,000 MW accelerated development program launched by the Government of Indonesia in 2010 (Fast Track Program 2). Phase 1 development has commenced under the framework of a 35-year geothermal mining license, a 30-year power purchase agreement (PPA) with PLN, and an approximately 20-year guarantee from the Ministry of Finance, as stipulated under a business viability guarantee letter (BVGL) signed in 2012. Overall, the project benefits from strong contractual arrangements with creditworthy parties such as the Government of Indonesia, rated BB+ by Standard & Poor's and Baa3 by Moody's, and PLN, rated BB by Standard and Poor's and Baa3 by Moody's.

3. The Borrower and Sponsors

11. The borrower, Supreme Energy Rantau Dedap, is a special-purpose vehicle established in Indonesia to explore and develop steam resources, and to construct, operate, and maintain the power plant and facilities. The shareholders of the borrower are GDF Suez Energy Asia Turkey and Southern Africa, Axia Power Holdings, and Supreme Energy Sriwijaya. These shareholders are wholly owned subsidiaries of the parent companies GDF Suez, Marubeni Corporation, and Supreme Energy (together, the sponsors).[12] Government awarded the concession to Supreme Energy and GDF Suez in December 2010 through a competitive tender process. Marubeni Corporation joined as a third equity investor in 2011. The sponsors bring a

March 2010. The first ADB loan under the program was $80 million for the Sarulla Geothermal Power Development Project, approved by the Board in December 2013.

[12] See Sponsor Overview (accessible from the list of supplementary linked documents in Appendix 2).

valuable combination of technical skills, geothermal expertise, and independent power producer development experience to the power sector in Indonesia, as seen in Table 1.

Table 1: Project Sponsors

Sponsor	Description
GDF Suez	GDF Suez is the largest power producer in the world with operations in 50 countries. It was formed in 2008 from the merger of energy company Suez and power company Gaz de France, and is active in electricity generation, gas, energy efficiency, waste, and water. GDF Suez has 117,000 MW of installed power generation capacity worldwide, including a renewable energy production base of over 16,000 MW. In 2012, the group generated revenues of €97 billion and is rated A by Standard & Poor's and A1 by Moody's. GDF Suez has been active for many years in electricity generation, liquid natural gas, and environmental services across the Asia and Pacific region, where it has an existing installed capacity of more than 12,800 MW and employs 11,000 people.
Marubeni Corporation	Marubeni Corporation, founded in 1858 and incorporated in 1949, is a leading Japanese trading company. It engages in a wide spectrum of businesses from energy, copper, and coal, to electric power generation, food, and chemicals, through its 130 offices across 65 countries. Marubeni has over 8,800 MW in power generation capacity in 23 countries worldwide. It has a recognized presence in Indonesia through its involvement in two large-scale IPP projects totaling 1,880 MW. In fiscal year 2012, Marubeni generated ¥4.9 trillion in revenue and had ¥6.1 trillion in total assets. Marubeni is rated BBB by Standard & Poor's and Baa2 by Moody's.
Supreme Energy	Supreme Energy was established in October 2007 by the founder of the Star Energy Group, the developer of the Wayang Windu Geothermal Project, the first private sector utility-scale geothermal power plant in Indonesia. The first 110 MW unit of the Wayang Windu plant was commissioned in 1999, and has been operating successfully over the last 12 years at an availability factor greater than 98%. The second 117 MW unit was commissioned in 2009. The management team has over 15 years of experience in geothermal development and the domestic oil and gas industry, and pioneered geothermal exploration in Indonesia under the 2003 geothermal law. Supreme Energy is presently developing two other large-scale geothermal projects in Indonesia—Muara Laboh and Rajabasa—demonstrating its commitment to the sector.

IPP = independent power producer, MW = megawatt.
Sources: GDF Suez, Marubeni Corporation, and Supreme Energy.

B. Development Impact, Outcome, and Outputs

12. **Impact.** The project impact will be commercial financing for Phase 2 (steamfield development and power plant construction), which will support the government's progress toward its renewable energy and climate change mitigation targets. Phase 2 will directly support climate change mitigation through an estimated net reduction in carbon dioxide emissions equivalent to 1.1 million tons per year. Successful deployment of concessional financing during the high-risk phase of this project will be instrumental in overcoming financing and development hurdles in the sector, catalyzing more private investment in geothermal energy by demonstrating the resource viability in Indonesia and by increasing investor interest.

13. **Outcome and output.** The outcome of the project will be the confirmation of Phase 2 bankability after the Phase 1 exploration activities. The project output will be the successful completion of Phase 1, the early site development and drilling program.

C. Alignment with ADB Strategy and Operations

14. **Consistency with Strategy 2020**. The project is consistent with ADB's Strategy 2020, which emphasizes support for environmentally sustainable growth and development of the private sector.[13] The strategy supports expanding environment-friendly technologies for clean

[13] ADB. 2008. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank, 2008–2020.* Manila.

energy generation and energy efficiency. Furthermore, the ADB Clean Technology Fund loan administration increases direct, value-adding investment in nonsovereign projects supporting multiple strategies and objectives under ADB's finance ++ approach.[14]

15. **Consistency with the country strategy.** The project is aligned with ADB's country partnership strategy, 2012–2014 for Indonesia.[15] It supports the strategy's second pillar of environmental sustainability through climate change mitigation, which prioritizes projects designed to promote renewable energy and energy efficiency. The project also promotes the government's long-term objective to deploy CTF resources to leverage commercial financing of geothermal projects.[16] The assistance complements recent ADB public sector technical assistance to the Ministry of Energy and Mineral Resources and to PLN for renewable energy development, including the review and revision of geothermal tariff schemes and government geothermal risk mitigation mechanisms.[17]

16. **Consistency with the sector strategy.** The project is consistent with the ADB Energy Policy support for renewable energy.[18] Although ADB reached its internal goal of $2 billion per annum in clean energy in 2011, the project helps sustain that level of investment in 2014 and further bolsters the private sector role in catalyzing additional resources for renewable energy.

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D. Implementation Arrangements

16. Table 4 summarizes the implementation arrangements.[19]

Table 4: Summary of Implementation Arrangements

Aspects	Arrangements
Regulatory framework	The project is to be developed under Fast Track Program 2, and the concession was awarded to the sponsors through a competitive tendering process run by the national electricity utility in 2010.
Management	GDF Suez, Marubeni Corporation, and Supreme Energy have formed a consortium that represents a 15-year track record in Indonesian geothermal power development and generation, and broad experience developing and operating over 120,000 megawatts in global power generation assets.
Implementation period	The Phase 1 exploration program consists of initial civil works and the drilling and testing of up to seven wells.
Construction and drilling arrangements	The initial construction work (upgrade and widening of existing roads, new access road, well pads for drilling works, water supply system, and camp accommodations) will be managed through a civil works contract undertaken by a wholly owned subsidiary of Leighton Holdings (Australia), one of Asia's largest contractors with a 50-year track record in civil engineering and construction. AECOM (US), another leader in design and construction, will provide the engineering services. The main drilling program will be managed through standard drilling and day-rate rig service contracts with two experienced and reputable drilling contractors in Indonesia. DATI, a partner of Parker Drilling (US), a leading provider of contract drilling and drilling-related services, will serve as the drilling rig contractor. Halliburton (US), one of the world's largest oil field services companies, will be the drilling service contractor implementing the cementing and directional drilling of wells.

[14] The finance++ approach enhances ADB financing by (i) leveraging resources through partnerships and (ii) providing knowledge to developing member countries to maximize development effectiveness.
[15] ADB. 2012. *Country Partnership Strategy: Indonesia, 2012–2014.* Manila.
[16] Government of Indonesia. 2013. *CTF: Revision of the Country Investment Plan for Indonesia.* Jakarta.
[17] The Government of Indonesia has tried to meet private developers' need for early-stage financing through Ministry of Finance Regulation No. 3/2012, which created a geothermal fund facility. However, the facility has certain terms and conditions (most notably the requirement of corporate guarantees for any loans to developers) that limit its capacity to move the market in situations where project viability has not been established.
[18] ADB. 2009. *Energy Policy.* Manila.
[19] Details of Implementation Arrangements (accessible from the list of linked documents in Appendix 2).

Aspects	Arrangements
Operations revenue structure	The project is being developed under the terms of a 30-year, 90% take-or-pay power purchase agreement with the national electricity utility, which includes an average tariff per kilowatt hour covering the project's fixed and operating costs, debt service, and equity return. However, the current Phase 1 financing will not directly benefit from any project revenues.
Performance monitoring	The borrower will submit the following to Asian Development Bank: (i) quarterly unaudited financial statements and annual audited financial statements, (ii) semi-annual environmental and social monitoring reports, and (iii) semi-annual development effectiveness reports.

Source: Supreme Energy Rantau Dedap.

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III. THE PROPOSED ADB ASSISTANCE

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IV. POLICY COMPLIANCE

A. Safeguards and Social Dimensions

18. **Environmental and social safeguards**. In compliance with ADB's Safeguard Policy Statement (2009), the project is classified category B for environmental impact, category A for involuntary resettlement, and category B for indigenous peoples.[20] The potential environmental and social impacts of the project have been identified and effective measures to avoid, minimize, mitigate, and compensate for the adverse impacts have been incorporated in the safeguard reports and plans. The institutional capacity and commitment of the borrower to manage the project's social and environmental impacts are deemed adequate. Information disclosure and consultations with stakeholders and affected communities have been conducted in accordance with ADB requirements.

19. While the project is located in a forest area, it is unlikely that short-term exploration will cause significant adverse environmental impacts that are irreversible, diverse, or unprecedented. No environmentally sensitive areas have been identified. Nonetheless, ADB is working with the borrower to ensure that habitat values are protected during Phase 1 and better-targeted baseline biodiversity surveys are initiated for a robust environmental impact assessment for Phase 2. Project impacts mainly arise from access roads, facilities, and well pad construction. To that end, road crossings have been constructed to ensure that river flows are maintained and erosion and sediment impacts are minimized. Plans to rehabilitate and revegetate disturbed areas at the completion of the exploration phase are in place. Impacts from drilling operations and vehicles are insignificant. Due diligence confirmed that the borrower has a comprehensive health, safety, and environmental management system and plans in place (including identification of company and contractor roles and responsibilities). Furthermore, the borrower demonstrated active incident reporting and corrective action.

20. The land acquisition for the 108.5 hectares of land required for Phase 1 has been completed through negotiated settlements. An audit of the land acquisition process and compliance with Safeguard Policy Statement requirements on involuntary resettlement and impacts on indigenous peoples was carried out. The audit confirmed that all 153 project-affected

[20] The Initial Environmental Examination was disclosed on the ADB website in May 2014 and the Social Safeguards Compliance Audit Report and Corrective Action Plan was disclosed on the ADB website in April 2014.

households have been compensated based on the negotiated compensation rates for land, crops, assets, and structures. About 80% of the population in the project area belongs to the Semendo ethnic group, and the borrower has taken up the implementation of an integrated social development program to manage the adverse impacts on Semendo community and to carry out developmental activities in the area. The audit confirms that the land identified for the project is neither traditional land nor land with customary rights. The Semendo community fully supports the project and is anticipating benefits from the project through social programs and employment. Corrective actions have been determined and agreed upon with the borrower.

21. **Other social dimensions.** An assessment of existing operations, human resource policies, and current procedures for labor procurement and management has confirmed that policies conform to national labor laws and regulations on the protection of rights and interest of women. The borrower requires its contractors to engage local labor, including women. ADB will ensure that loan documentation includes provisions requiring the borrower to comply with national labor laws and, in addition, to take specific measures (including in relation to contractors) in line with internationally recognized core labor standards and in compliance with ADB's Social Protection Strategy.[21]

B. Anticorruption Policy

22. The sponsors and the borrower were advised of ADB's Anticorruption Policy (1998, as amended to date), and policy relating to the Combating of Money Laundering and the Financing of Terrorism (2003).[22] Consistent with its commitment to good governance, accountability, and transparency, ADB requires the borrower to institute, maintain, and comply with internal procedures and controls following international best practice standards for the purpose of preventing corruption and money-laundering activities and the financing of terrorism; and to covenant with ADB to refrain from engaging in such activities.

C. Investment Limitations

23. The proposed loan will not count toward the medium-term, country, industry, group, and single-project exposure limits for nonsovereign investments, as it will be funded by CTF resources, not ADB ordinary capital resources.

D. Assurances

24. Consistent with the Agreement Establishing the Asian Development Bank, the Government of Indonesia's no objection to the proposed assistance to Supreme Energy Rantau Dedap will be obtained. ADB will enter into suitable finance documentation, in form and substance satisfactory to ADB, following approval of the proposed assistance by the Board of Directors.

V. RECOMMENDATION

25. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the administration by ADB of a loan up to $50,000,000 to be provided by the ADB Clean Technology Fund to

[21] ADB. 2003. *Social Protection*. Manila (adopted 2001).

[22] As of 21 June 2013, the Financial Action Task Force classified Indonesia as a strategically deficient jurisdiction in relation to combating money-laundering and the financing of terrorism. This was considered during due diligence.

PT Supreme Energy Rantau Dedap for the Rantau Dedap Geothermal Development Project (Phase 1) in Indonesia, 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

4 June 2014

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
Impact (2018) Successful financing of a private sector geothermal power generation project in South Sumatra Early-stage financing solutions available for geothermal project exploration and development across Indonesia	At least $600 million of equity and debt is committed for steamfield development and power plant construction for 240 MW geothermal power project by 2018.[a] Early-stage financing solutions (e.g., debt facilities or insurance coverage) made available to at least 3 Indonesian geothermal projects by 2018	Project documents; legal documentation	**Assumptions** Private sector financing is available for scaling up geothermal energy development. Fossil fuel prices increase or stay at current levels. National policy priorities regarding renewable energy sector and climate change mitigation continue. **Risks** Sponsors decide not to pursue investment due to external market factors. Change in Indonesian law pertaining to key project documents (e.g., power purchase agreement, business viability guarantee letter)
Outcome (2018) Confirmation of geothermal resources in South Sumatra	Rantau Dedap reservoir is confirmed to be able to support at least 240 MW of geothermal power generation capacity over 30 years.	Development effectiveness monitoring reports; Supreme Energy Rantau Dedap technical and operational reports	**Risks** Fewer geothermal resources than expected Well chemistry is not in line with estimates.
Output (2017) Completion of exploration phase	Drilling of at least five exploratory wells by 2017.	Supreme Energy Rantau Dedap quarterly progress reports and project completion	**Assumptions** Appointment of experienced, reputable civil works and drilling contractors The government continues to promote geothermal energy

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
	Local purchase of goods and services amount to $85 million during the exploration phase (2014–2016). Full-time equivalent employment of 700 persons during the exploration phase (2014–2016).	report. Development effectiveness monitoring reports; Supreme Energy Rantau Dedap operation reports	exploration in line with existing laws and regulations. **Risks** Implementation delays may be caused by lack of timely availability of budgeted resources and lengthy approval processes for land registration, and execution of safeguard compliance.
Activities with Milestones 1.1. Finalization of legal and geothermal due diligence reports 1.2. Signing of loan agreement by July 2014. 1.3. Construction and drilling work in progress, as scheduled upon loan signing. 1.4. Conduct of baseline studies and implementation of institutional arrangements as defined in the initial environmental examination. 1.5. Implementation of project design and drilling program recommendations as advised by independent geothermal consultant, as determined in the final due diligence report.			**Inputs** Loan: ADB Clean Technology Fund: up to $50.0 million

ADB = Asian Development Bank, MW = megawatt.
[a] Net reduction of 1.1 million tons of carbon dioxide equivalent emissions per annum by 2018.
Source: Asian Development Bank.

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LIST OF LINKED DOCUMENTS

http://www.adb.org/Documents/RRPs/?id=47937-01-4

1. Sector Overview
2. Details of Implementation Arrangements
3. Contribution to the ADB Results Framework
4. Financial Analysis
5. Economic Analysis
6. Country Economic Indicators
7. Summary Poverty Reduction and Social Strategy
8. Safeguards and Social Dimensions Summary
9. Initial Environmental Examination
10. Social Safeguards Compliance Audit Report and Corrective Action Plan

Supplementary Documents

11. Geothermal Overview
12. Sponsors
13. Integrity Matter Disclosure