



## Indonesia Geothermal Resource Risk Mitigation Project (GREM) (P166071)

EAST ASIA AND PACIFIC | Indonesia | Energy & Extractives Global Practice |  
IBRD/IDA | Investment Project Financing | FY 2020 | Seq No: 5 | ARCHIVED on 22-Dec-2021 | ISR49734 |

Implementing Agencies: PT Sarana Multi Infrastruktur (Persero), Government of Indonesia

### Key Dates

#### Key Project Dates

Bank Approval Date: 26-Sep-2019

Effectiveness Date: 11-Dec-2020

Planned Mid Term Review Date: 18-Nov-2025

Actual Mid-Term Review Date:

Original Closing Date: 31-Oct-2029

Revised Closing Date: 31-Oct-2029

### Project Development Objectives

Project Development Objective (from Project Appraisal Document)

The project development objectives are to scale up investment in geothermal energy development and support the Borrower in its efforts to reduce greenhouse gas emissions in the country.

Has the Project Development Objective been changed since Board Approval of the Project Objective?

No

### Components Table

Name

Component 1 – Geothermal Resource Risk Mitigation Facility:(Cost \$455.00 M)

Component 2 – Technical Assistance and Capacity Strengthening:(Cost \$10.00 M)

### Overall Ratings

Name	Previous Rating	Current Rating
Progress towards achievement of PDO	<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Moderately Satisfactory
Overall Implementation Progress (IP)	<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Moderately Satisfactory
Overall Risk Rating	<input type="checkbox"/> Moderate	<input type="checkbox"/> Moderate

### Implementation Status and Key Decisions

Effectiveness has been obtained for all the legal agreements related to the Project.

GREM facility has been made operationalized by SMI after finalization of the Operation Manual and public disclosure of the Developer's Manual. SMI has been intensively discussing with various developers to conduct preliminary technical and safeguards screenings, prepare clear timeline and the facility requirements. The first GREM application will be expected from the private window by early 2022. Issuance of Perpres on RE Tariff and PMK amendment will be critical to finalize the financing structure and term sheet for public window.

### MPA Program Development Objective



The Program Development Objective is to increase the share of renewable energy in Indonesia's energy mix.

### Multiphase Programmatic Approach (MPA) Status

The Geothermal Resource Risk Mitigation (GREM) Project is a 10-year program under a MPA aimed at supporting the Government of Indonesia in its goal to achieve the target of 23 percent of renewable energy (RE) in the national energy mix by 2025.

This MPA consists of two phases: the first phase (the Project) will start up the program, whereas the second phase will scale up investment, reflect on changes and streamline learning. The Project will catalyze financing and risk-sharing arrangements to help reduce the risk of exploration, which is expected to lead to the development of 1 gigawatt (GW) of new geothermal generation capacity and catalyze investment of US\$4 billion for steam production drilling and power plant construction.

### Risks

#### Systematic Operations Risk-rating Tool

Risk Category	Rating at Approval	Previous Rating	Current Rating
Political and Governance	☐ Moderate	☐ Moderate	☐ Moderate
Macroeconomic	☐ Moderate	☐ Moderate	☐ Moderate
Sector Strategies and Policies	☐ Substantial	☐ Moderate	☐ Moderate
Technical Design of Project or Program	☐ Substantial	☐ Moderate	☐ Moderate
Institutional Capacity for Implementation and Sustainability	☐ Substantial	☐ Moderate	☐ Moderate
Fiduciary	☐ Substantial	☐ Substantial	☐ Substantial
Environment and Social	☐ Substantial	☐ Substantial	☐ Substantial
Stakeholders	☐ Substantial	☐ Substantial	☐ Substantial
Other	--	☐ Substantial	☐ Moderate
Overall	☐ Substantial	☐ Moderate	☐ Moderate

### Results

#### PDO Indicators by Objectives / Outcomes

Facilitate investment in geothermal resource confirmation				
► PrDO: Generation capacity of geothermal sub-projects reaching financial close (Megawatt, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	1,000.00



Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	28-Feb-2029
<b>► PrDO: Estimated GHG emission reduction compared to business as usual baseline (Metric ton, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	187,000,000.00
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	28-Feb-2029
<b>► Phase1: Generation capacity of geothermal sub-projects reaching financial close (Megawatt, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	600.00
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	28-Feb-2029
Comments:	Generation capacity at financial closure			
<b>► Phase1: Estimated GHG emission reduction compared to a business-as-usual baseline (Metric ton, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	112,300,000.00
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	30-Jun-2029
Comments:	Net GHG emission accounting			

### Intermediate Results Indicators by Components

Geothermal Resource Risk Mitigation Facility				
<b>► Funding Proposals Approved (Number, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	10.00
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	30-Jun-2029
Comments:	Number of funding proposals approved by PT SMI			
<b>► Sub-projects with Productive Resources Confirmed (Number, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target



Value	0.00	0.00	0.00	7.00
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	30-Jun-2029
Comments:	Number of sub-projects where geothermal resources have been confirmed as being adequate for further development as evidenced by the developer decision to continue.			
<b>► Total capital mobilized for investment in geothermal power generation (Amount(USD), Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	2,400,000,000.00
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	28-Nov-2029
Comments:	Total public and private capital mobilized, as confirmed by funding confirmation for public projects and financial close for private projects.			
<b>► Private capital mobilized for investment in geothermal power generation (Amount(USD), Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	2,000,000,000.00
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	28-Nov-2029
Comments:	Private capital mobilized, as confirmed by financial close.			
<b>► Total number of exploration wells drilled (Number, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	28.00
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	28-Nov-2029
Comments:	Exploration wells drilled by developers with agreed funding proposals. It assumes three wells are drilled per funding proposal.			
<b>► Success rate of wells drilled (Percentage, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	60.00
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	30-Nov-2029
Comments:	The percentage of wells drilled that are confirmed with steam production at or over the minimum level set in the exploration plan.			
<b>► Steam capacity from wells drilled (Megawatt, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	48.00



Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	28-Nov-2029
Comments:	It assumes six megawatts per sub-project with productive resources confirmed			

<b>Technical Assistance and Capacity Strengthening</b>				
<b>► Regulatory framework and institutional capacity conducive to geothermal investments (Yes/No, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	28-Feb-2029
Comments:	As a result of the technical assistance and capacity building provided, (i) MEMR has made changes to regulation(s) regarding licensing and tariff-setting, (ii) PLN has successfully implemented public-private partnerships that secure private sector investments and adopted economic off-take pricing regime, and (iii) Geo Dipa and PLN have improved capacity for management of geothermal development.			
<b>► Establishment of national standards for geothermal data registration and professional certifications for geothermal sector (Yes/No, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	30-Jun-2029
Comments:	Establishment of national standards for data registration under MEMR for uniform description of geothermal resources and development of professional certifications to increase the availability and caliber of Indonesian experts in geothermal resource assessments and drilling management			
<b>► Technical guidelines and manual for geothermal management developed for PLN (Yes/No, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	30-Jun-2029
Comments:	Technical guidelines and manual developed to improve PLN's capacity for management of geothermal development			
<b>► Establishment of a geothermal data management tool and geothermal database for Geo Dipa (Yes/No, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	30-Jun-2029
Comments:	Geothermal data management tool and geothermal database established and relevant training provided to Geo Dipa to improve its capacity for management of geothermal development			
<b>► Number of project-level Gender Action Plans (GAPs) prepared by sub-borrowers (Number, Custom)</b>				



	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	10.00
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	30-Jun-2029
Comments:	Gender Action Plan prepared for each sub-project by the respective developer			
<b>► Citizen/community collaboration in planning and decision-making (Yes/No, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	30-Jun-2029
Comments:	Sub-borrowers have enabled citizen / community collaboration in planning and decision-making related to proposed sub-project development evidenced through annual Citizen and Community Feedback Summaries submitted to Borrower with information about the feedback received from citizens and communities and how this has been incorporated in decisions related to the sub-project development.			
<b>► PT SMI's compliance with business standards for decision making procedures (Percentage, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	50.00	50.00	90.00
Date	28-Feb-2019	18-Jun-2021	14-Dec-2021	28-Nov-2029
Comments:	Compliance with business standards (maximum turnaround time for the different decision making procedures) as indicated in the PT SMI Operations Manual			
<b>► Women employed locally at site in technical roles (Percentage, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	7.00	7.00	7.00	20.00
Date	31-May-2019	18-Jun-2021	14-Dec-2021	31-Oct-2029
Comments:	Staff with technical background as opposed to administration, service, accounting etc - to be defined in the Operations Manual			
<b>► Standard operating procedures (SOP) developed for gender-informed geothermal workplace health and safety (Text, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No SOP currently exists in this area	No SOP currently exists in this area	No SOP currently exists in this area	SOP in place in place and in line with international best practice
Date	01-May-2019	18-Jun-2021	14-Dec-2021	30-Sep-2029
Comments:	Standard operating procedures (SOP) developed for gender-informed geothermal workplace health and safety			



Performance-Based Conditions

Data on Financial Performance

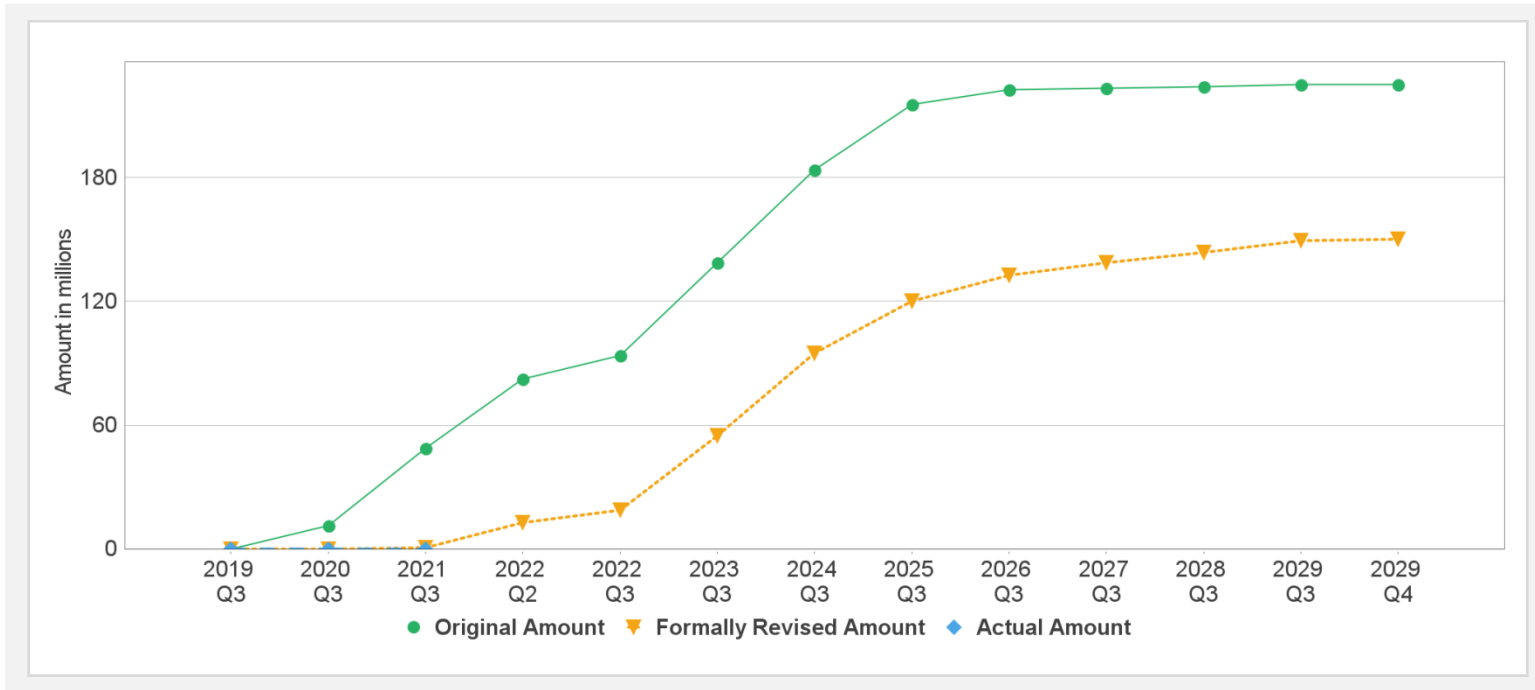
Disbursements (by loan)

Project	Loan/Credit/TF	Status	Currency	Original	Revised	Cancelled	Disbursed	Undisbursed	% Disbursed
P166071	IBRD-90090	Effective	USD	150.00	150.00	0.00	0.00	150.00	0%
P166071	TF-B0306	Effective	USD	40.00	40.00	0.00	0.00	40.00	0%
P166071	TF-B0968	Effective	USD	2.50	2.50	0.00	0.76	1.74	30%
P166071	TF-B0979	Effective	USD	32.50	32.50	0.00	0.00	32.50	0%
P166071	TF-B3799	Effective	USD	7.50	7.50	0.00	0.00	7.50	0%
P166071	TF-B3800	Effective	USD	90.00	90.00	0.00	0.00	90.00	0%
P166071	TF-B3801	Effective	USD	2.50	2.50	0.00	0.76	1.74	30%
P166071	TF-B3811	Effective	USD	1.25	1.25	0.00	0.00	1.25	0%

Key Dates (by loan)

Project	Loan/Credit/TF	Status	Approval Date	Signing Date	Effectiveness Date	Orig. Closing Date	Rev. Closing Date
P166071	IBRD-90090	Effective	26-Sep-2019	28-Aug-2020	19-Jan-2021	31-Oct-2029	31-Oct-2029
P166071	TF-B0306	Effective	26-Sep-2019	28-Aug-2020	19-Jan-2021	31-Oct-2029	31-Oct-2029
P166071	TF-B0968	Effective	26-Sep-2019	28-Aug-2020	11-Dec-2020	31-Oct-2029	31-Oct-2029
P166071	TF-B0979	Effective	26-Sep-2019	28-Aug-2020	11-Dec-2020	31-Oct-2029	31-Oct-2029
P166071	TF-B3799	Effective	17-Dec-2020	18-Dec-2020	29-Jan-2021	31-Oct-2029	31-Oct-2029
P166071	TF-B3800	Effective	17-Dec-2020	17-Dec-2020	18-Dec-2020	31-Oct-2029	31-Oct-2029
P166071	TF-B3801	Effective	17-Dec-2020	17-Dec-2020	18-Dec-2020	31-Oct-2029	31-Oct-2029
P166071	TF-B3811	Effective	24-Aug-2020	17-Dec-2020	18-Dec-2020	30-Sep-2025	30-Sep-2025

Cumulative Disbursements



### PBC Disbursement

PBC ID	PBC Type	Description	Coc	PBC Amount	Achievement Status	Disbursed amount in Coc	Disbursement % for PBC
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### Restructuring History

There has been no restructuring to date.

### Related Project(s)

There are no related projects.