



ID-Geothermal Energy Upstream Development (P155047)

EAST ASIA AND PACIFIC | Indonesia | Energy & Extractives Global Practice |
 Recipient Executed Activities | Investment Project Financing | FY 2017 | Seq No: 16 | ARCHIVED on 15-Apr-2024 | ISR60284 |

Implementing Agencies: PT Geo Dipa Energi, PT Sarana Multi Infrastruktur (Persero), PT Sarana Multi Infrastruktur (Persero)

Key Dates**Key Project Dates**

Bank Approval Date: 09-Feb-2017

Effectiveness Date: 04-Aug-2017

Planned Mid Term Review Date: 31-Jan-2020

Actual Mid-Term Review Date: 14-Jan-2020

Original Closing Date: 31-Dec-2022

Revised Closing Date: 31-Dec-2025

Project Development Objectives

Project Development Objective (from Project Appraisal Document)

The PDO is to facilitate investment in geothermal power generation and reduce greenhouse gas emissions.

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

No

Components Table

Name

Risk Mitigation for Geothermal Exploration Drilling:(Cost \$98.00 M)

Capacity Building on Geothermal Exploration and Environmental and Social Safeguards Management

Overall Ratings

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

Implementation Status and Key Decisions

The Geothermal Energy Upstream Development Project (GEUDP) was approved in February 2017 and became effective in August 2017. Since Project approval, the Project underwent two restructurings in 2020 and 2021. The Project restructuring extended the Clean Technology Fund (CTF) and the Global Environment Facility (GEF) grants closing dates from December 31, 2022 to December 31, 2025. The other changes in the Project restructuring included to (i) introduce PT Geo Dipa Energi (PT GDE) as the second Implementing Agency, (ii) downscale the number of exploration drilling subproject from the five-six estimated at Project approval to a new target of four, (iii) update the targets and timelines of the Project Development Objectives (PDO) and intermediate indicators according to these changes, and (iv) reflect changes in the drilling strategy in the intermediate indicators.

The third Project restructuring has just been completed in March 2024 to provide that: i) the subproject in the Waesano site will no longer be eligible for financing under the GEUDP; ii) the number of subprojects targeted under the Project will be scaled down to only one subproject; and iii) relevant changes to the Result Framework will be adopted.



Currently, Jailolo (Halmahera Island, North Maluku) is the prospect under the Technical Assistance (TA) Phase of the GEUDP. Only the prospect that is graduated from the TA Phase will continue to the Investment Drilling Phase. The decision for Jailolo to continue to the Investment Drilling Phase is expected by end of May 2024.

Risks

Systematic Operations Risk-rating Tool

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

Results

PDO Indicators by Objectives / Outcomes

To facilitate investment in geothermal power generation				
► Electric power generation capacity enabled through the issuance of geothermal development licenses (Megawatt, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	10.00
Date	01-May-2017	31-Dec-2022	31-Mar-2024	31-Dec-2025
Comments:	<p>This indicator reflects the new generation capacity enabled under the Project. After restructuring, the number of subproject numbers is scaled down from four to one, with an assumption that the site will have successful exploration drilling to prove the existence of at least 10 MW geothermal resource for power development.</p> <p>At this ISR, no exploration has been completed to claim the progress of this indicator.</p>			
► Commercial capital mobilized for investment in geothermal power generation (million) (Amount(USD), Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target



Value	0.00	0.00	0.00	40.00
Date	01-May-2017	31-Dec-2022	31-Mar-2024	31-Dec-2025
Comments:	<p>This indicator looks at the expected commercial capital mobilized as a result of the project interventions. After restructuring, the target of generation capacity enabled by the Project is scaled down from 65 MW to 10 MW, with an assumption of US\$4 million per MW (reflecting an increase of geothermal development cost) will be required to develop a full geothermal subproject. The previous assumption at the Project design was US\$3 million per MW.</p> <p>At this ISR, no exploration has been completed to enable new geothermal generation capacity with the expected commercial capital mobilized.</p>			

To reduce greenhouse gas emissions				
▶ Estimated GHG emission reduction compared to a business-as-usual baseline (Metric ton, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	50,770.00
Date	01-May-2017	31-Dec-2022	31-Mar-2024	31-Dec-2025
Comments:	<p>This indicator reflects the outcome of the GHG accounting exercise based on 10 MW of new generation capacity enabled under the Project. The calculation indicates that 1 MW of capacity will reduce GHG emissions by 5,077 metric tons of CO2 equivalent per year.</p> <p>At this ISR, no exploration has been completed to enable a new generation capacity and expect avoided GHG emissions.</p>			

Overall Comments

The revision of these PDO level indicators is the implication of the reduced size of the Project (reducing the number of subproject from four to one and reducing the expected generation capacity enabled by the Project).

Intermediate Results Indicators by Components

Risk Mitigation for Geothermal Exploration Drilling				
▶ Total generating capacity-equivalent of steam yield from all wells drilled when converted to equivalent standard diameter well production (Megawatt, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	3.00
Date	01-May-2017	31-Dec-2022	31-Mar-2024	31-Dec-2025
Comments:	<p>This indicators tracks the total generating capacity-equivalent of steam yields expected. The assumption is that two wells will be drilled for the subproject. It is assumed that GEUDP will get 1 successful well with steam yield of 3 MW/well.</p> <p>At this ISR, no exploration well has been drilled to be measured under this indicator.</p>			
▶ Average generating capacity-equivalent of steam yield per well drilled when converted to equivalent standard diameter well production (Megawatt, Custom)				



	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	3.00
Date	01-May-2017	31-Dec-2022	31-Mar-2024	31-Dec-2025
Comments:	This indicators tracks the average generating capacity-equivalent of steam yields expected. It is assumed that steam yields from productive wells will range from 3 to 10 MW with a (conservative) average of 3 MW. At this ISR, no exploration well has been drilled to be measured under this indicator.			
► Issuance of geothermal development licenses (Number, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	0.00
Date	01-May-2017	31-Dec-2022	31-Mar-2024	31-Dec-2025
Comments:	This indicator tracks the number of geothermal development licenses issued.			
► Estimated increase in the number of connected households for the associated local electricity networks (Number, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	17,900.00
Date	01-May-2017	31-Dec-2022	31-Mar-2024	31-Dec-2025
Comments:	This indicator measures the planned increase in access enabled through the Project. The underlying assumptions are: 1 MW plant capacity, with 92% capacity factor, produces 8,059 MWh/year, 20% of which serving electrification needs, with an average consumption level of 900 kWh/y/residential consumer (intended as household). The actual planned increase in number of consumer connections will be deduced from PLN's distribution planning for the local electricity networks. At this ISR, no exploration site has been completed to enable the geothermal power plant development and to provide estimate increased of new household connection.			
► Estimated direct project beneficiaries (Number, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	71,600.00
Date	01-May-2017	31-Dec-2022	31-Mar-2024	31-Dec-2025
Comments:	The subproject which is able to complete the exploration drilling successfully will enable additional electricity generation capacity. The additional generation capacity will be connected to households with assumption of 4 family members per household who will be direct beneficiaries of this project. At this ISR, no exploration site has been completed to enable additional electricity generation capacity and connect the households.			
□ Estimated female beneficiaries (Percentage, Custom Supplement)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	50.00
► Delivery of Inferred Resource Capacity Reports by Exploration Management Team (Number, Custom)				



	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	1.00
Date	01-May-2017	31-Dec-2022	31-Mar-2024	31-Dec-2025
Comments:	This indicator tracks the number of reports delivered by the Implementing Agency, based on the identified 1 sub-project under this Project. At this ISR, no exploration has been completed and no resource report has been produced.			
► Villages located next to exploration sites with at least one public consultation held (Percentage, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	100.00	100.00	100.00
Date	01-May-2017	31-Dec-2022	31-Mar-2024	31-Dec-2025
Comments:	This indicator supports tracking of Citizen Engagement by measuring percentage of sub-project affected villages which have received public consultation from the Implementing Agency. At this ISR, the indicator was measured based on the public consultation activities completed by the Implementing Agency to all affected villages in Jailolo site.			
► Share of public consultations segregated by gender (Percentage, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	12.00	12.00	50.00
Date	01-May-2017	31-Dec-2022	31-Mar-2024	31-Dec-2025
Comments:	This indicator supports tracking of gender action which is measured from attendance list of public consultation events. At this ISR, the indicator was measured from the public consultation carried out in the Jailolo site.			

Capacity Building on Geothermal Exploration and Environmental and Social Safeguards Management				
► Practice guides for safeguards implementation (Number, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	2.00
Date	01-May-2017	31-Dec-2022	31-Mar-2024	31-Dec-2025
Comments:	This indicator tracks the number of practice guides that will inform safeguards implementation under the Project. Two guides have been identified and being prepared: 1) Stakeholder Engagement and FPIC Guideline and 2) Safety Protocol for the H2S Risk during the Exploration Drilling and Well Testing. At this ISR, no report has been completed.			

Performance-Based Conditions



Data on Financial Performance

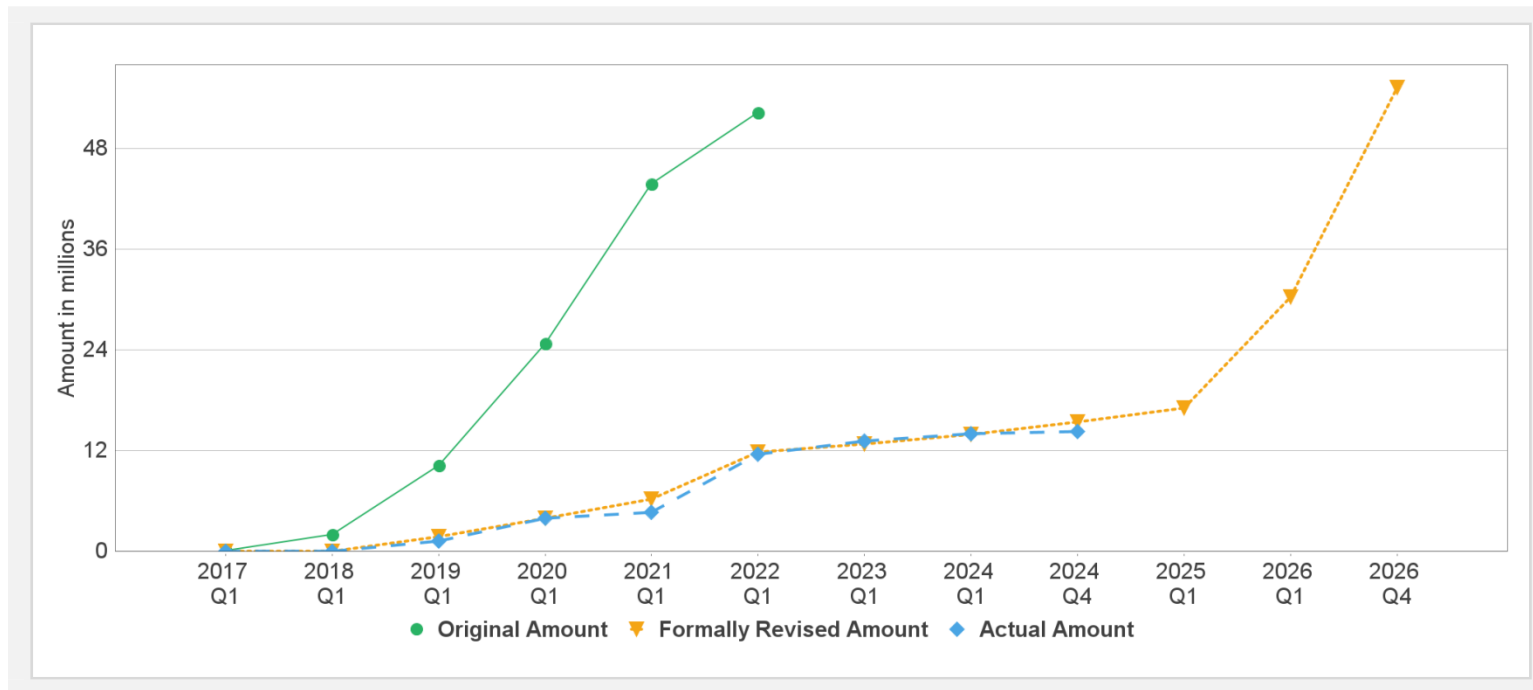
Disbursements (by loan)

Project	Loan/Credit/TF	Status	Currency	Original	Revised	Cancelled	Disbursed	Undisbursed	% Disbursed
P161644	TF-A4086	Effective	USD	6.25	6.25	0.00	6.02	0.23	96%
P155047	TF-A4089	Effective	USD	49.00	49.00	0.00	8.24	40.76	17%

Key Dates (by loan)

Project	Loan/Credit/TF	Status	Approval Date	Signing Date	Effectiveness Date	Orig. Closing Date	Rev. Closing Date
P161644	TF-A4086	Effective	09-Feb-2017	07-Mar-2017	04-Aug-2017	31-Dec-2022	31-Dec-2025
P155047	TF-A4089	Effective	09-Feb-2017	07-Mar-2017	04-Aug-2017	31-Dec-2022	31-Dec-2025

Cumulative Disbursements



Restructuring History

Level 2 Approved on 18-Apr-2021 ,Level 2 Approved on 25-May-2021 ,Level 2 Approved on 29-Mar-2024

Related Project(s)



P161644-ID-Geothermal Energy Upstream Development
