

Creating Value to Accelerate PGE's 1 GW Geothermal Company

Earnings Call FY23 Results PT Pertamina Geothermal Energy Tbk.

March 2024

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Ahmad Yani Director of Operation



Rachmat Hidajat Director of Exploration and Development



Yurizki Rio Director of Finance

Experience:

- SVP Geothermal Assets, Medco Power Indonesia
- President Director, PT Medco Cahaya Geothermal
- Board of Director, PT Sarulla Operating Ltd
- VP Exploration and Subsurface, Supreme Energy Corporation



Education:

- Diploma in Geothermal Technology, University of Auckland
- Master of Science in Geology, University of Texas, El Paso, USA
- Bachelor of Science in Geology, University of Texas, El Paso, USA

Experience:

- GM Area Geothermal Lahendong, Pertamina Geothermal Energy
- Manager Drilling Planning & Support, Pertamina Geothermal Energy
- Manager Operation Area Lahendong, Pertamina Geothermal Energy



Education:

- Master of Science in Geothermal Exploration, Universitas Indonesia
- Bachelor of Petroleum Engineering, Universitas Islam Riau

Experience:

- VP Upstream Business Development & Portfolio, Pertamina
- VP Upstream Business Growth, Pertamina



Education:

- Master of Business Administration, Institut Teknologi Bandung
- Bachelor of Petroleum Engineering, Institut Teknologi Bandung

Experience:

- Director Head of Investment Banking Advisory / M&A, PT BNI Sekuritas
- Vice President Head of Corporate Finance and Investments, Onstar Express Pte. Ltd. (Group Hold Co)
- Group Head of Corporate Planning, IR and ERM, PT Mitrabahtera Segara Sejati, Tbk (MBSS)



Education:

- Master of Finance, Prasetiya Mulya Business School
- Bachelor of Finance, University of Texas
 at Dallas



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2023 Key Performance Highlights

Operational and Financials Performances



Indonesia Geothermal Space & Corporate Vision

Baseload Renewable Energy



Geothermal power evolving into the chosen baseload renewable energy. Strategic player in green transition.

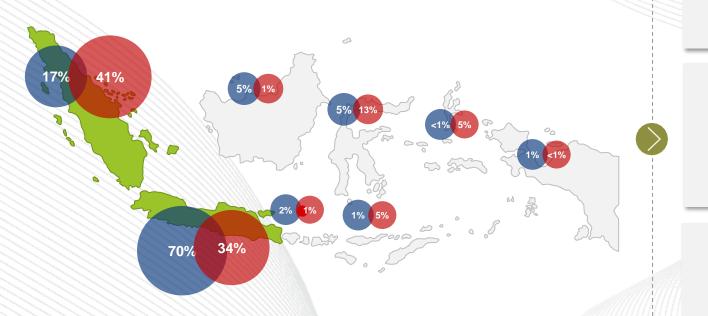
Geothermal Resource Potential & Electricity Demand per Region (December 2021)

75% of total resource potential is located in Sumatra & Java accounting for ~87% of electricity demand

% of electricity demand per region, total Indonesia demand of 257 TWh

#%

% of Geothermal potential resource, total Indonesia resource of 23 GW



Source : Geological Agency of Indonesia Ministry of Energy and Mineral Resources, "Development of Geothermal in Indonesia", Jakarta, April 2022; PLN Statistics Report 2021

Stable Baseload Power Supply & Cost Competitive

- Geothermal has the best availability among renewables in that ¹ as it is always available & controllable
- Geothermal is more cost-effective than other renewable alternatives for baseload power, especially compared to intermittent renewables that require storage (e.g., solar, wind)

Best Green Energy for Energy Transition

~17.4 GW of potential Geothermal resource are located in Sumatra and Java island alone. As they are the most industrialized Islands in the country, geothermal can become a key source of green baseload power for the industrial sector, being a key strategic renewable energy source.

Regulatory Support through Presidential Regulation

- Presidential Regulation 112 / 2022 was issued to stimulate renewables in investment & eventually phase out coal
- The Ministry of Energy and Mineral Resources (MEMR) has defined a new tariff ceiling, which includes an additional 'location factor' multiplier for remote locations and a transmission tariff.

1. Based on LCOE Lazard (global) estimate sources – (avg. 71\$/MWh geothermal vs. 92\$/MWh solar/wind avg.) in 2021; and IESR (national) – (avg. 6.7 cents/kwh – geothermal vs. 8.12-9.3 cents/kwh – solar/wind avg.) in 2019, non-subsidy geothermal compared to the combination of solar, wind with battery storage; Source: CNBC; ARPA-E, US Energy Information Administration; Lazard

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Green Energy Investments Opportunities in Indonesia

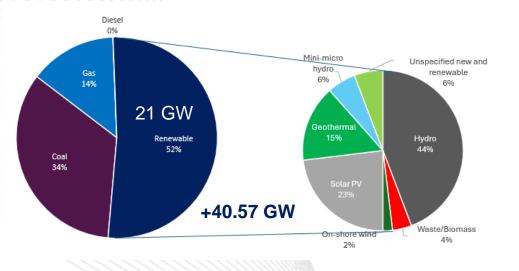


Indonesia's electricity demand forecast and growth opportunities

Total power capacity addition 40.57 GW by 2030

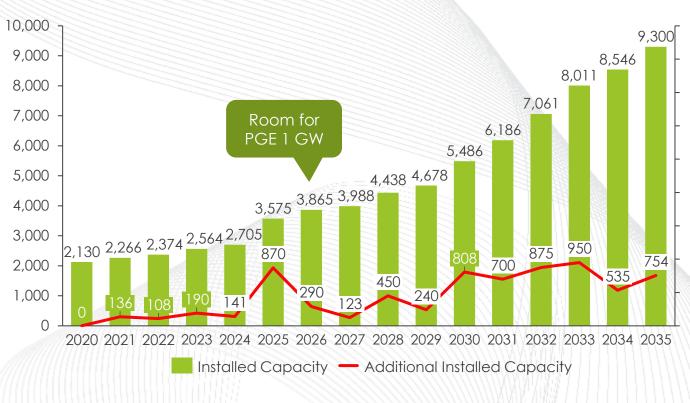
Installed capacity reached 81.2 GW in 2022. By 2030, renewable energy will account for half of the 40.57 GW of additional installed power capacity.

Descriptions	Indonesia	Sumatra	Java-Bali
Electricity Growth (%)	4.9	6.6	4.0
Installed Capacity Addition by 2030 (GW)	40.57	9.75	21.48



Source: RUPTL 2021-2030; Statista, 2024

Indonesia's forecasted geothermal power generation installed capacity growth in GW



Source: Road Map Panas Bumi 2020 - 2035

Key Initiatives



PGE's Growth Strategy Entails Four Goals and Objectives

Vision						
Aspirations		d-to-end management of geotherm its derivative products	al Supporting and particip	Supporting and participating in national and global decarbo agendas		
Goals and Objectives	Become Largest Domestic Developer in Indonesia	Expand Overseas and Becon an International Player	me Transform & Develop In Businesses Up & Dow Value Chain		Build Domestic & Global Diversified Customer Base	
Business		Geothermal Power		O	ther Products and Services	
Focus	Operating	Exploration & Development	Other Concessions and non- PGE producing Fields		n Hydrogen, Methanol, Carbon Credit, Complementary Services, Mineral Extraction	
Key		Capabili	ty optimization			
Enablers	 Cross-functional collaboration Center of excellence Strategic partnership 	•	nization esources enhancement High impact negotiation	٠	Competitive Financing Regulatory Compliance Government support	

2023 Top Performance

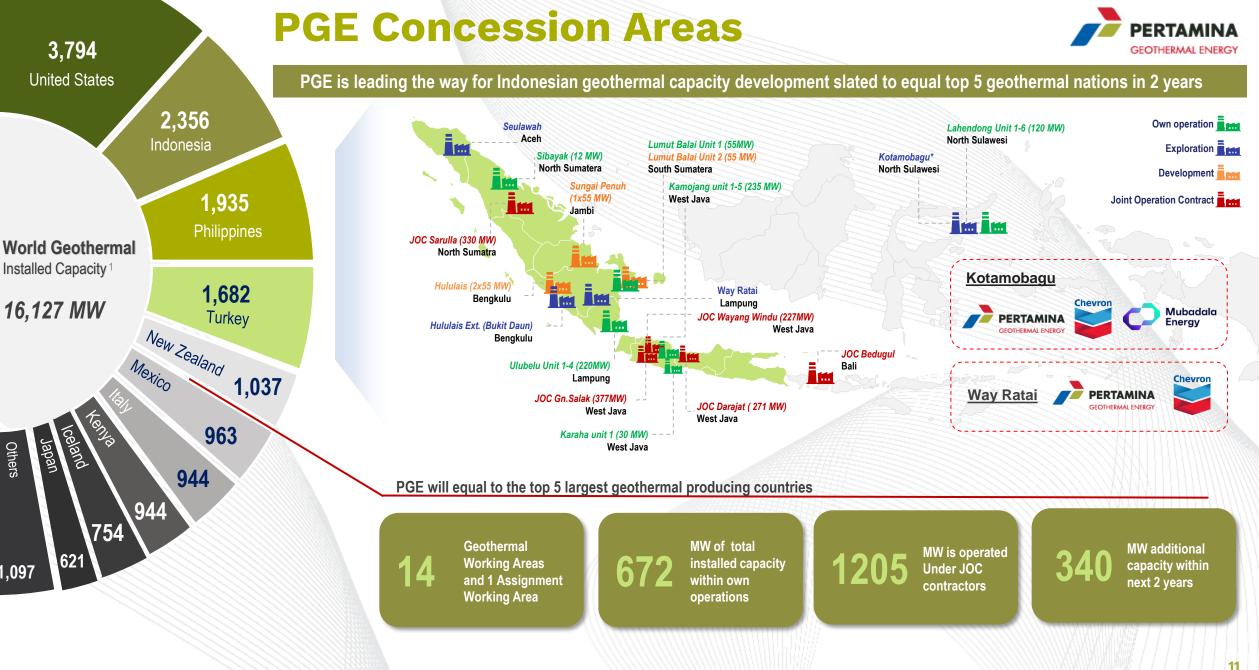


PGE Strong Achievement in Developing Core Geothermal Business and Value Creation





PGE Overview & Expansion Plans

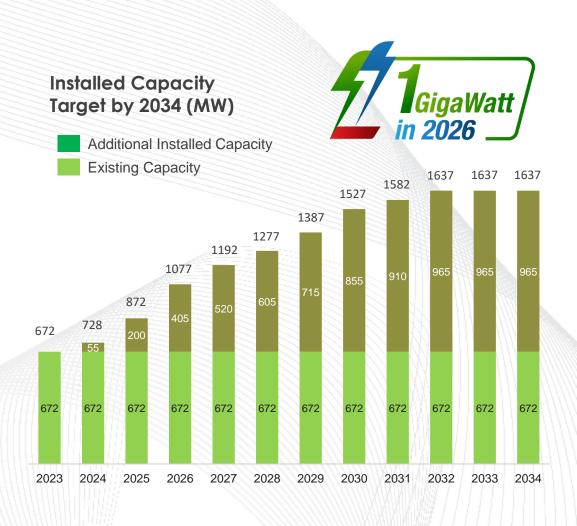


Growth Strategies



The Company Continues to Expand its Installed Capacity through Both Organic and Inorganic Growth Strategies

Destinations	Project	Target
	Co – generation (230 MW)	 Joint Study Development Agreement between PGE and PLN Indonesia Power Secure PPA in 2024
Become Largest Domestic	Hululais Unit 1 & 2	Partnering with PLN through JV
Developer in Indonesia	Lumut Balai Unit 2	Target timeline achieve as planned (COD Q4 2024)
	Lahendong Unit 7 & 8	Development drilling (2024), COD (2027)
	Inorganic Growth	Capacity expansion opportunities
Expand and Overseas and	Turkiye Expansion	Operating field(s)
Become an International Player	Kenya Expansion	Agreement for exploration activities
Transform & Develop Innovative Businesses Up & Down the Value	Technology Development: (1) Two phase flow meter (2) Lab Services (3) ESP & Close Loop Technology	Establish center of excellence
Chain	Drilling & Power Plant (Heat Exchanger & Binary Technology)	
Build a Diversified	Green Hydrogen	Pilot project
Customer Base	Carbon Credit	Carbon credit trading



PGE Pipeline Projects

34 M

640

MW



PGE is Aggressively Expanding its Business through Both Organic and Inorganic Growth Strategies, while Simultaneously **Focusing on the Development of Secondary Products**



Lumut Balai Unit 2 Project



Lahendong Unit 7&8 Project

			445	
40 W	Quick Win 1 GW		MW	Green
				Valaria
1.	Lumut Balai unit 2	55 MW	1.	Kotamo
2.	Hululais unit 1 & 2	110 MW	2.	Lahende
3.	Ulubelu Co-Generation	30 MW	3.	Seulawa
4.	Lahendong Co-Generation	15 MW	4.	Hululasi
5.	Lumut Balai Co-Generation	20 MW	5.	Bunbun
6.	Lahendong Co-Generation	15 MW	6.	Gunung
7.	Lahendong Co-Generation	10 MW	7.	Way Ra
8.	Hululais Co-Generation	60 MW	8.	Sungai
9.	Ulubelu Co-Generation	10 MW		
10	. Lumut Balai Co-Generation	20 MW		
			Se	condary
			1	Ulubelu

Inorganic Project

- **Turkiye Project** 1.
- Kenya Project 2.

Field Development obagu 90 MW dong 7 & 8 40 MW 110 MW vah si Ext 30 MW 55 MW n 55 MW g Tiga 55 MW atai Penuh 10 MW

Product

- Ulubelu Green Hydrogen (Pilot Plant) 1.
- 2. Carbon Credit
- 3. Center of Excellence
 - Laboratory Services
 - Heat Exchanger Manufacturing
 - Techology Development (Two-Phase Flow Meter, Mineral Extraction, ESP, Close Loop)



2023 Key Performance & Key Highlights

Key Operations Highlights



Company's Production Data Reveals A Strong Year-on-year Growth.



1,693.64 GWh +0,85% YoY

- Acceleration of Unit 5 Turn Around (from 25 to 11 days)
- Acceleration of Unit 2 Simple Inspection (from 30 to 21 days)
- Steam Shortage for Unit 4
 (6 MW)



868,86 GWh +0,54% YoY

- Improvement in availability factor
- Acceleration of Unit 5&6 Maintenance Outage (from 8 to 5 days)
- Acceleration of Unit 1 &2 Turn Around (from 40 to 34 & 30 days respectively)



1.606,07 GWh

+3,40% YoY

- Additional generation up to 20 MW from SAGS Debottlenecking project
- Acceleration of Unit 4 Turn Around (from 21 to 16 days)
- Well Testing Completion
 UBL-M1 (11 MW)
- Steam Shortage (28 MW)

96.85%

+1.6% YoY



469,30 GWh +4,63% YoY

- · Higher electricity demand
- Implementation of House Load, Free Governor and Power System Stabilizer Operations
- 1st lowest EFOR on Sumatra Grid



96,68 GWh +14,75% YoY

- Unplanned shutdown decreased from 2.5% to 0.7% (2022 vs 2023)
- The completion of landslide mitigation infrastructure
- Steam Shortage (18 MW)
- Increased capacity (21%) and revenue (32%) from 2021-2023 (YoY)

Own Operation Consolidated : High system reliability demonstrates robust performance throughout the year

Availability Factor - Steam +

99.96% n +1% YoY Availability Factor - Electricity Capacity Factor (%) **86.78%** +5.6% YoY

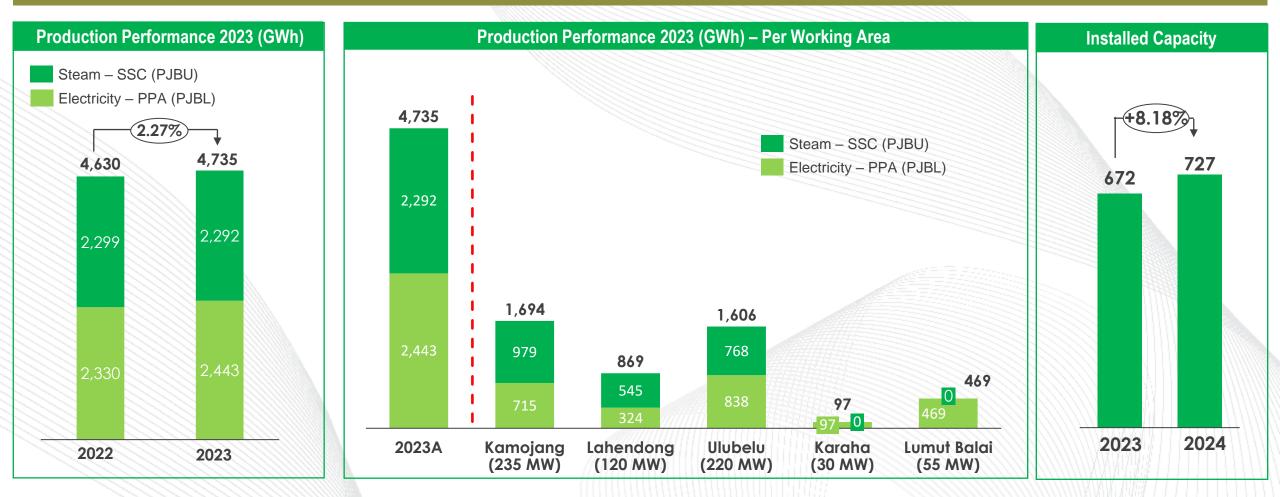
Outage Rate (%)

0.53% +31.17% YoY

Production Performance (Own Operation)

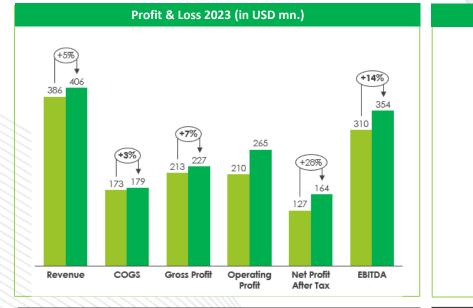


De-bottlenecking and acceleration of maintenance days delivered higher production performance YoY

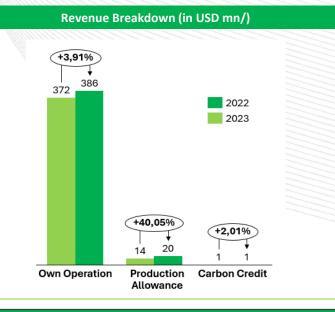


Financial Performances

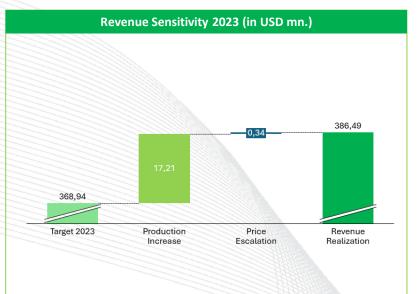




Selling Price (USD cents/KWh)	December 31 2022	December 31 2023	%
Steam	6.23	6.35	1.92
Electricity	9.83	9.86	0.30
Weighted Avg.	8.04	8.16	1.49
Production Costs (USD cents/KWh)	December 31 2022	December 31 2023	%
Steam	2.63	2.75	4.56
Steam Electricity	2.63 5.95	2.75 5.93	4.56 (0.33)



Margins (%)	2022	2023
EBITDA	81	86
Gross Profit	59	60
Operating Profit	52	55
Net Profit	33	40



"

Our Solid Productions Combined with Disciplined approach to costs efficiency and fund optimization have resulted in strong performance

Financial Performances



.... Inline With A Robust Balance Sheet And Cash Position To Support Our Expansion Plans

December 31 2022	December 31 2023	%
2,475	2,964	19.75
1,220	992	(18.68)
1,256	1,971	56.92
	31 2022 2,475 1,220	31 2022 31 2023 2,475 2,964 1,220 992

Cash Flow (USD mn)	December 31 2022	December 31 2023	%
Beginning Balance	125	262	109.6
Cash flow from operations	220	253	12.72
Cash flow from investment	(18)	(78)	333.33
Cash flow from financing	(63)	241	482.53
Ending Balance	262	678	158.77

Capex (USD mn)	2022	2023
Development	12	82
Maintenance	30	73
Total	42	155

Ratios (%)	December 31 2022	December 31 2023
Return on Assets	5	6
Current Ratio	51	354
Interest Coverage Ratio	7	11
Interest Bearing Debt to Equity	74	36
Debt to EBITDA	301	206

Carbon Credit Revenue



PGE as a pioneer for Carbon trading project in Pertamina Group since 2011



In 2022, PGE has successfully issued **~1,7 million Ton CO2eq** of CERs under CDM and Gold Standard Mechanism



In 2023, PGE also contribute in domestic carbon market, by issuing **864,209 Ton CO2eq**



No	Carbon Credit Project	Commercial Operating Date (COD)	Total CERs (TCO2eq)	Period	Revenue (USD)	Realization
1	Gold Standard Lumut Balai 1-2	1 Sept 2019		in the verification proc	ess	
2	Gold Standard Karaha 1	6 April 2018	192.809	COD to 29 Feb 2020	80.316,52	2022
3	Gold Standard Ulubelu 3-4	26 Juli 2016	1.549.663	COD to 29 Feb 2020	667.129,92	2022
4	SRN Lahendong 5-6	15 Sept 2016	483.112*	COD to 31 Des 2020	761.758,00	2023
5	Gold Standard Kamojang 5	29 Juni 2015		in the verification proc	ess	

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Thank You

Investor Relations Pertamina Geothermal Energy Grha Pertamina, 7th Floor Pertamax Tower JI. Medan Merdeka Timur, Jakarta, Indonesia

https://www.pge.pertamina.com
pge.ir@pertamina.com