



**GEODYN**  
SOLUTIONS



**COMPREHENSIVE PROPOSAL  
FOR GEODYN SOLUTIONS:  
1000 MW GEOTHERMAL POWER  
PLANT IN INDONESIA**

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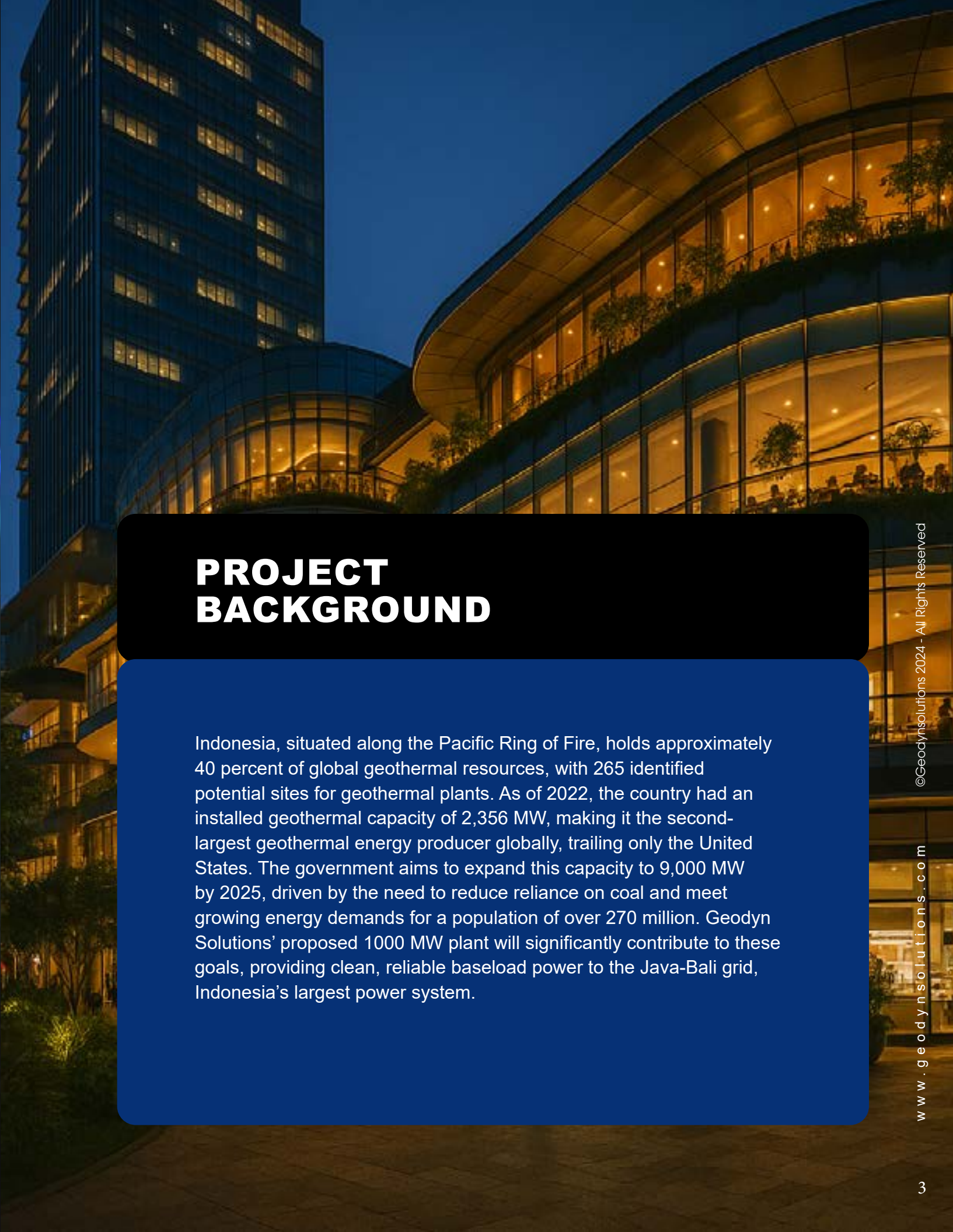
# EXECUTIVE SUMMARY

Geodyn Solutions proposes the development of a 1000 MW geothermal power plant in Indonesia, leveraging the country’s position as the world’s largest holder of geothermal resources, estimated at 27–29 GW. This project aligns with Indonesia’s goal to expand renewable energy to 23% of its energy mix by 2025, reducing reliance on coal, which currently accounts for 60% of electricity production. The estimated project cost, including a 12 percent contingency fee to account for unforeseen expenses, is 5.432 billion dollars. The project is expected to yield a return on investment (ROI) of 179.34 percent over 30 years, meaning every dollar invested generates 1.7934 dollars in total value. The initial investment is anticipated to be recovered in approximately 6.89 years, making it a financially attractive venture. The plant is likely to create 1,170 permanent jobs and thousands of temporary jobs during construction, while offering significant environmental benefits, including low greenhouse gas emissions and minimal land use, supporting Indonesia’s climate and electrification goals.



# PROJECT BACKGROUND

Indonesia, situated along the Pacific Ring of Fire, holds approximately 40 percent of global geothermal resources, with 265 identified potential sites for geothermal plants. As of 2022, the country had an installed geothermal capacity of 2,356 MW, making it the second-largest geothermal energy producer globally, trailing only the United States. The government aims to expand this capacity to 9,000 MW by 2025, driven by the need to reduce reliance on coal and meet growing energy demands for a population of over 270 million. Geodyn Solutions’ proposed 1000 MW plant will significantly contribute to these goals, providing clean, reliable baseload power to the Java-Bali grid, Indonesia’s largest power system.





# PROJECT COST

The estimated cost to construct a 1000 MW geothermal power plant is 4.85 billion dollars, derived from the cost of the Sarulla geothermal power plant, which cost 1.6 billion dollars for 330 MW, or approximately 4.85 million dollars per MW. To account for unforeseen expenses and risks, such as drilling uncertainties or regulatory delays, a 12 percent contingency fee is added, bringing the total project cost to 5.432 billion dollars. This contingency aligns with industry practices.

# COST BREAKDOWN

- **Capital Expenditure (CAPEX): 5.432 billion dollars**  
Base Cost: 4.85 billion dollars  
Contingency Fee: 0.582 billion dollars (12 percent of base cost)
- **Drilling Costs:** 30–60 percent of base CAPEX (1.46–2.91 billion dollars)
- **Infrastructure Costs:** 10–15 percent of base CAPEX (485–727.5 million dollars)
- **Operation & Maintenance (O&M):** 0.02 dollars per kWh, totaling 4.73 billion dollars over 30 years

# RETURN ON INVESTMENT (ROI)

The project's financial viability remains robust, with an estimated ROI of 179.34 percent over a 30-year lifespan.

# KEY ASSUMPTIONS

- Electricity Sales Price: 0.12 dollars per kWh
- Annual Energy Production: 7.884 billion kWh
- Annual Revenue: 946.08 million dollars
- Total Revenue (30 Years): 28.38 billion dollars
- Total Costs (30 Years): 10.162 billion dollars
- Net Profit: 18.22 billion dollars
- ROI: 179.34 percent

This means every dollar invested yields 1.7934 dollars in value over 30 years.



# PAYBACK PERIOD

The project is expected to achieve payback within 6.89 years.



- **Annual Net Cash Flow:** 788.4 million dollars
- **Payback Period:** 5.432 billion dollars / 788.4 million dollars ≈ 6.89 years

# FINANCIAL CONSIDERATIONS

- **Revenue Stability:** High capacity factor (90 percent) ensures steady income
- **Risks:** Upfront costs and exploration risks; mitigated by government support
- **Competitive Landscape:** Geothermal energy is supported by government tariffs and incentives

# ECONOMIC IMPACT



## JOB CREATION

- **Permanent Jobs:** 1,170 jobs (1.17 jobs/MW)
- **Temporary Jobs:** Thousands during construction phase
- **Economic Impact:** Long-term local employment, tax revenue, and infrastructure development

## ECONOMIC STIMULATION

- **Tax Revenue:** Central and local government contributions
- **Infrastructure Development:** Roads, facilities, and utilities
- **Energy Security:** Less dependency on imported fuels



## ENVIRONMENTAL BENEFITS

- **Low Greenhouse Gas Emissions:** 99 percent less CO<sub>2</sub> and 97 percent less sulfur than fossil fuels
- **Renewable and Sustainable:** Long-term resource life (up to 17 billion years)
- **Minimal Land Use:** Less land per GWh than coal, wind, or solar
- No Fuel Transport Required
- Low Water Usage

## ENVIRONMENTAL CONSIDERATIONS

- **Induced Seismicity and Land Subsidence:** Mitigated with advanced monitoring and reservoir management
- Closed-cycle systems and reinjection minimize emissions

## STRATEGIC ALIGNMENT WITH INDONESIA'S GOALS

- **Renewable Energy Targets:** Supports 23 percent renewable target by 2025
- **Electrification Goals:** Expands electricity access for 20 million people
- **Carbon Reduction:** Helps meet 29 percent reduction target by 2030 (Paris Agreement)



## CHALLENGES AND MITIGATION

- **High Upfront Costs:** Managed through partnerships and multilateral loans
- **Regulatory Barriers:** Addressed via supportive national laws
- **Resource Risks:** Minimized with exploratory programs and incentives

## COMPARISON TO PREVIOUS PROPOSAL

The 1000 MW geothermal power plant proposed by Geodyn Solutions represents a strategic investment in Indonesia's energy future. With a total cost of 5.432 billion dollars, an ROI of 179.34 percent, and a payback period of under 7 years, the project is economically sound. It will generate clean, reliable power, support economic growth, and create thousands of jobs. Through strategic partnerships and government support, Geodyn Solutions is poised to lead Indonesia's geothermal revolution.



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