

**POTENTIAL AND ECONOMICS OF GEOTHERMAL FIELD REGIONAL
GEDONGSONGO VOLCANOES UNGARAN COMPLEX
DISTRICT SEMARANG CENTRAL JAVA PROVINCE**

ABSTRACT

Location of potential geothermal volcanic complex Gedongsongo Unggaran located at about 30 km southwest of the capital of Central Java - Semarang and geographically located at position $7^{\circ}08' \text{LS} - 7^{\circ} 15' 00''$ latitude and $110^{\circ} 17' 00''$ longitude. Area is largely entry into the area of Cultural District Gedongsongo temple. area can be achieved by using either two-wheel motor vehicles and four wheels and with time or distance of about 2 hours from Yogyakarta. geothermal field Gedongsongo - Unggaran is a geothermal field with the potential to be developed with a temperature of 275°C problem is first how much potential power in Gedongsongo. Both are worthy Gedongsongo geothermal field to be developed as the electricity needs in terms of technical and economic aspects.

The methodology is a collection of data; relevant literature, collecting data with field observations with geological methods, Geophysics and Geochemistry (3G), build models of geothermal systems, geothermal energy calculations with the volumetric method, determination of the mass flow rate and electrical power, Doing technical feasibility and the economic development of the power generation system (power plan).

Results Potential that produced 197 MWe ; electrical of power = 54,829 kWh; production of electricity = 480,302,040 kW per year and costs incurred investment of USD 35,990,000; based economic analysis obtained the following indicators: MARR 10%; NPV USD 111,222,760; in IRR = 57%; B / C = 4,09; POT = 3,5 years, and it can be stated that the investment in geothermal power plants worth Gedongsongo for managed and developed.