ABSTRACT

FAULT STRUCTURE AND GEOTHERMAL SYSTEM ANALYSIS BASED ON GRAVITY INVERSION MODEL, MAGNETOTELLURIC AND GEOCHEMISTRY OF GEOTHERMAL PROSPECTING FIELD WAI SELABUNG SOUTH SUMATERA

By

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Increased global energy consumption and decreased of fosil fuel stocks provides us to find a renewable and green energy, and geothermal energy is one of them. One of indonesian regions that has geothermal prospect fields is Wai Selabung, Oku Selatan residence, South Sumatera province with 15 km^2 abroad. Gravity, Magneotelluric, and Geochemistry surveys are intended to observes fault structure and geothermal system to see a global picture of energy on that areas. Formation of geothermal system on Wai Selabung were influenced by vulcanic environment and tectonic with same direction as Sumateras fault. Results of *SVD* Bouguer anomaly residual analisys shows two normal fault and one thrust fault directing NW-SE on Kota dalam and Teluk Agung, and one thrust fault in Sinarmarga. Based on 3D Bouguer anomaly inversion model, we were obtained two reservoar with densities 1.4-1.7 gr/cm^3 and total volume 15.7 km^3, Cap rock with densities 2-2.4 gr/cm^3 and resestivities <20 ohm as a vulcanic alteration, and Heat source with densities 2.4-2.9 gr/cm^3 as a intrution lava Tebat gayat. Integrated compilation shows reservoar temperature based on geotermometer Na-K-Mg was 170^oC, so hipotesis potential energy classes on prospecting field is 182 MWe.

Key words : Geothermal, Faults, Gravity, Geochemistry