ABSTRAK

MODEL KONSEPTUAL PANASBUMI WAYANG WINDU BERDASARKAN ANALISIS DATA *CONTROL SOURCE AUDIO MAGNETOTELLURIC* (CSAMT), DAN GRAVITASI DI KAWASAN PANGALENGAN, KABUPATEN BANDUNG, JAWA BARAT

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Berdasarkan survei pendahuluan yang dilakukan sejak 1960 di wilayah Indonesia menunjukkan lebih dari 200 prospek panasbumi. Dengan cadangan panasbumi potensial sebesar 12.200 MW dan cadangan terbukti sebesar 2.000 MW, yang tersebar di 125 lokasi di Indonesia. Salah satu WKP yang sudah beroperasi dan perlu pengembangan lebih lanjut yaitu lapangan panasbumi Wayang Windu.

Penelitian ini dilakukan di lapangan panasbumi Wayang Windu dengan tujuan untuk menentukan model konseptual panasbumi berdasarkan kontras nilai resistivitas batuan. Metode yang cocok digunakan yaitu metode *Control Source Audio Magnetotelluric* (CSAMT) dan Gravitasi. Dilakukan inversi 1D CSAMT dengan metode *Bostick* dan *Occam,* serta pseudosection 2D untuk mengetahui gambaran lapisan bawah permukaan. Filter *derivative* dan pemodelan 2,5 D gravitasi menggambarkan pola dan gambaran patahan pada daerah penilitian.

Berdasarkan inversi 1D CSAMT diinterpretasikan nilai resistivitas kurang dari 10 ohm.m sebagai *claycap,* nilai resistivitas 10-40 ohm.m diinterpretasikan sebagai zona reservoar. Korelasi pseudosection 2D dengan pemodelan 2,5 D Gravitasi dapat menunjukan sebaran lapisan dan struktur pada daerah penelitian. Model konseptual yang dibangun berdasarkan integrasi CSAMT, Gravitasi dan data geologi dapat menggambarkan sistem panasbumi Wayang Windu berupa *overburden, claycap,* reservoar, zona *upflow,* zona *recharge,* dan lapisan batuan.

Kata Kunci : CSAMT, filter *derivative,* Inversi Occam, panasbumi, Pemodelan 2,5 D

ABSTRACT

CONCEPTUAL MODEL OF WAYANG WINDU FIELD GEOTHERMAL SYSTEM BASED ON DATA CONTROL SOURCE AUDIO MAGNETOTELLURIC (CSAMT) ANALYSIS, AND GRAVITY IN PANGALENGAN AREA, BANDUNG, WEST JAVA

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Based on a preliminary survey conducted since 1960 in Indonesia, it shows more than 200 geothermal prospects. With potential geothermal reserves of 12,200 MW and proven reserves of 2,000 MW, spread over 125 locations in Indonesia. One of the WKP that is already operating and needs further development is the Wayang Windu geothermal field.

This research was conducted in the Wayang Windu geothermal field with the aim of determining a conceptual geothermal model based on the contrasting rock resistivity values. The suitable method used is the Control Source Audio Magnetotelluric (CSAMT) and Gravity method. A 1D inversion of CSAMT was performed using the Bostick and Occam methods, as well as a 2D pseudosection to determine the description of the subsurface layer. Derivative filter and 2.5 D gravity modeling describe fault patterns and features in the study area.

Based on the CSAMT 1D inversion, resistivity values of less than 10 ohm.m are interpreted as claycap, resistivity values of 10-40 ohm.m are interpreted as reservoir zones. The correlation of 2D pseudosection with 2.5 D Gravity modeling can show the distribution of layers and structures in the study area. The conceptual model built based on the integration of CSAMT, gravity and geological data can describe the Wayang Windu geothermal system in the form of overburden, claycap, reservoir, upflow zone, recharge zone, and rock layers.

Keywords **:** *CSAMT, 2.5 D modeling, Occam inversion, derivative filter, geothermal*