

2nd World Congress on

PETROLEUM AND REFINERY

June 01-03, 2017 Osaka, Japan

Geothermal energy potential of Pakistan on the basis of abandoned oil and gas wells**Asif Mehmood, Jun Yao, Dong Yan Fun and Atif Zafar**
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In Pakistan, about 1000 oil and gas exploratory wells have been drilled having depth ranging from 230 m to +6400 m. More than 60 percent wells have been abandoned or dry wells. In spite of all exploratory efforts, the energy need of the country is not being overcome. Present study looks forward to reutilize these abandoned wells by using subsurface data related to thermal characteristics of rock sequence. Present study shows heartening geothermal gradient exception in lower Indus Basin coupled with buried fossil-fail-rift basement structure. Aeromagnetic survey has also disclosed significant prediction for the “hot dry rock” geothermal energy in Kharan-Panjgur tectonic depression in western part of the Pakistan. Literature review shows that, for electricity production, hot dry rock (HDR) geothermal environment offers massive potential. These resources are mostly much deeper than the hydrothermal resources. Hot dry rock energy comes from moderately water-free hot rock found at a depth of 4,000 meters or more below the earth surface. In contrast to a geothermal field in one of the tectonic/volcanic anomalies, the HDR system depends on the artificial simulation of tight formations by hydraulic fracturing to create underground heat exchanger. Fluid is circulated in closed circuit mode whereas reservoir pressure is managed by balanced production and injection rates in multiple well arrays. Current study shows the matchless application of collection data of oil and gas exploratory wells to develop renewable and sustainable energy operation in Pakistan.

Biography

Asif Mehmood has been doing PhD in Petroleum Engineering at China University of Petroleum (East china). His major is Reservoir Engineering.

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