

Activities on exploiting and utilizing oilfield geothermal energy and its prospects in eastern China

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Clean energy development and energy structure adjustment are imperative in China due to its soaring energy demand and the frequent hazy weather caused by unbalanced energy mix in recent years. Now, China attaches more attention to the development of geothermal energy. In China's 13th Five-Year Plan, the projected utilization of geothermal is equivalent to 70 million tons of standard coal, which will accounted for 33% of all non-fossil fuel growth. As we know, there are abundant medium and low-temperature geothermal resources in China, with annual recoverable resources equivalent to 1.9 billion tons of standard coal. Most of these hydrothermal resources occurred in hydrocarbon bearing sedimentary basins, especially in the eastern oil-producing areas of China. Huabei, Dagang, Jidong and Liaohe oilfields in the Bohai Bay Basin are among the best geothermal exploration targets with high geothermal gradients and fine conditions for geothermal forming. Based on the results of geothermal resources assessed recently in these oilfields and the operating geothermal projects, the prospects on geothermal exploitation and utilization in oilfield have been discussed. Many activities of harnessing oilfield thermal energy have been presented in this paper. It was used for oil-water separation, transportation pipeline heating, resident's space heating, power generation, agricultural planting, cultivation and bath. There are three ways of exploiting geothermal: extracting heat from produced water directly or indirectly through the use of a heat pump, transforming abandoned well into geothermal well, drilling geothermal wells in favorable target. Considering oilfield's abundant geothermal resources, mature technology, and large market demands, it was believed that exploiting and utilizing oilfield geothermal has immense potential whether it is used in industry or for civilian use.