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Onshore Texas and Louisiana Geopressured-Geothermal for Baseload Electrical Generation

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ABSTRACT

A tremendous energy resource resides within and below the hydrocarbon producing zones of the northern Gulf of Mexico. This resource is geopressured-geothermal brine that can be produced for heat to generate electricity. In 1975, the U.S. Geological Survey (USGS) assessed the geopressured-geothermal potential of the onshore Texas and Louisiana Gulf Coast by breaking it into six trends from the Eocene Wilcox to the Miocene and younger sediments. The 1978, USGS assessment indicates this area has the potential to produce from 23,000 to 240,000 megawatts of electricity for 30 years. In 1976, the Department of Energy (DOE) began its geopressured-geothermal program with its wells of opportunity study of 15 wells. A geopressured-geothermal pilot power plant with solution gas assistance was built to prove the viability of this energy source. Much of the basic research is done. Industry can now carry this energy play forward. Because of global warming from greenhouse gas emissions, huge economic and societal disruptions are forecast. This has led to demands for carbon free energy. Geopressured-geothermal reservoirs have the potential to produce thousands of megawatts of carbon free base load electricity. (If I were a civil engineer, I would probably talk about wind turbines and solar panels, but these are not baseload.) As a geologist, I see conventional geothermal energy as a key part of the renewable energy transition. This is an economic and environmentally sound source of baseload electrical power. Geopressured-geothermal energy can be a significant factor in the transition away from fossil fuels. The development of electricity from geopressured-geothermal resources will provide geologists, geophysicists, reservoir engineers, and drillers with new opportunities. Basically, instead of drilling for isolated accumulations of oil and gas, a new energy business is forming that will drill for hot geopressured brine to convey heat to the surface for conversion into electricity.

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