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Abandoned wells impose enduring liabilities to petroleum companies and/or governments. However, the depth and abundance of abandoned petroleum wells make them an economically attractive source of geothermal energy. Geothermal energy can be harvested from oil/gas wells and used to generate electricity, used directly for heating, incorporated into water desalination processes, or used by heat pumps for heating/cooling applications. The present paper examines the possibility of extracting geothermal energy from abandoned oil/gas wells using a downhole double-pipe heat exchanger between outlet and inlet of the inner pipe of the geothermal heat exchanger. The efficiency of the geothermal heat to electricity is evaluated.