

## SUSTAINABLE USE OF GEOTHERMAL WATERS IN BIHOR COUNTY FROM LEISURE BATHS TO ELECTRICITY PRODUCTION

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**Abstract:** *Through this work I wanted to conduct an empirical research of the evolution of the utilization of geothermal water over the last 15 years in Bihor county, from activities that use low temperature geothermal water such as leisure baths to activities for obtaining electricity through high temperature geothermal water. Geothermal energy holds an important place among the renewable energy resources together with wind energy, solar energy, hydro energy and energy obtained from biomass. One of the advantages of using geothermal water for the purpose of obtaining energy is the fact that there is a reduced amount of waste and there are not any additional costs for waste depositing or for the environmental pollution. Up until the end of the last century geothermal energy was used especially from leisure baths or balneology to greenhouse heating or residential spaces and district heating. There were identified geothermal water resources in over 80 countries and the resources were registered in 58 of these countries. The continual growth of global requirements and tendencies concerning the obtaining of electrical energy out of non-polluting sources and without generating gas with greenhouse effects, led to investments in technologies that obtain electricity out of geothermal waters with temperatures over 100 degrees Celsius (after 2000). In Bihor County the main usage of geothermal waters was for leisure baths and balneology in Baile Felix and 1 May Resorts. After 2000, the usage of geothermal water expanded for leisure baths through the construction or modernization of certain pools in Marghita, Madaras and Sarcau. The activity of heating up residential districts in 2000 was in primary state. Due to the involvement of Transgex SA, one of the main companies in the area that exploits geothermal water on a national level and through the Oradea City Hall contest and the mayors of Beius, Salonta, Marghita, Nojorid-Livada, Sacuieni-Sanicolau-de-Munte, Bors-Santion, the number of residential districts that are heated up using geothermal water resources extended considerably. In 2000 there were 21 countries all over the world where geothermal energy was converted to electricity. In 2012 Transgex SA installed in Oradea, in Iosia Neighborhood the first unit in Romania that generates electrical power using geothermal water, having a capacity of 50kW. This investment is a primary step in the field of electricity production using geothermal water as sustainable use of renewable resources.*

**Keywords:** geothermal waters, sustainable use, geothermal energy, renewable resources.

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