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Applicability of geophysical surveys in geothermal projects in Romania – status and potential value for reservoir de-risking: Beiuș and Oradea case study

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ABSTRACT

Currently, geophysical methods are underutilized in exploration and appraisal campaigns for geothermal projects in Romania, primarily due to low-budget constraints. Most pre-drill subsurface modelling relies on regional knowledge, supplemented by detailed observations from existing well data. However, implementing electrical and seismic surveys can enhance subsurface understanding and reduce the risks associated with well drilling, which can incur substantial costs, particularly in low-enthalpy geothermal projects.

An analysis of two low-enthalpy geothermal projects, Beiuș and Oradea, located in Northwestern Romania and operated by TRANSGEX S.A., was conducted to understand the current exploration planning methodologies and the potential benefits of 2D seismic and electrical surveys in reducing risks associated with the Triassic hydro-geothermal system. The localities are situated in distinct sedimentary sub-basins, but exhibit a comparable tectonic framework.

This presentation outlines the geological and tectonic characteristics of the hydro-geothermal system, highlights the key challenges faced in creating accurate subsurface models, and explores how these challenges can be addressed through 2D seismic and electrical surveys.

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