Geothermal Power Project 2003-2004, Energy Framework Programme – ALTENER

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Abstract
The paper features the Geothermal Power research project supported by the ALTENER-Energy Framework Programme of the EC. Four Hungarian, one Austrian, one Portuguese, and an Icelandic partner will implement the project starting from spring of 2003. The main objectives of the project is to develop an integrated feasibility study on installing small-scale geothermal power plants in Hungary combined with heating applications and balneological use via a cascading system. The intension is to provide a model for extended application throughout the Accession Countries and the EU-15. The envisaged major result is to identify the most feasible group of boreholes for the implementation of mini-power plants. For this purpose detailed financial viability studies will be made taking into consideration physical, technical and environmental parameters.
More information is available on the project website:
www.geothermalpower.net

Keywords
mini-power plant, feasibility study, Hungary, ALTENER II

Introduction

The GEOTHERMAL POWER proposal was submitted to the call of ALTENER II in April 2002. ALTENER II is part of the Energy Framework Programme, which is managed by the European Commission's Directorate-General for Energy. ALTENER II focuses exclusively on the promotion of renewable energy sources. The proposal has been favourably evaluated and the contract negotiations finished at the end of 2002. Based on the latest information given by the European Commission, the project is estimated to start during spring 2003.The main aim of the project entitled 'Feasibility Study on Installing Geothermal Mini-Power Plants in Hungary' is to develop an integrated feasibility study on installing small-scale geothermal power plants in Hungary combined with heating and balneological use via a cascading system, (herewith) providing a model for extended application throughout the Accession Countries and EU-15.
The project will be carried out by an international consortium of seven partners from four European countries, namely ENEX hf (Iceland), Instituto de Soldadura e Qualidade (Portugal), Bluewaters Environmental Engineering Ltd. (Austria), Aquaplus Ltd., Eötvös Loránd University, Department of Geophysics, Innoterm Ltd. and Geonardo Ltd. (Hungary). The activity types of the partners are diverse and balanced, SMEs, university, NGO and a drilling company can be found in the consortium.
The main reference area of the research is Hungary - but as stated above - the 18-month project of a total budget of nearly 0.7 million Euros will provide a model to the European Union.

Experimental

Further two objectives of the research beside the realization of the integrated feasibility study are; to determine those wells, which are most suitable to implement a mini-power plant combined with heating and balneological use, and to explore the policy and ownership barriers of such investments.

The tasks, which will be performed in the project, have been arranged in eight work packages. There are two horizontal- namely coordination and dissemination - and six vertical work packages. The one of the vertical work packages (henceforth abbreviated WP) deals with the End-user Requirements. During this work a study will be carried out about the requirements of potential Hungarian end-users envisioning development of geothermal resources, based on the utilisation of unproductive hydrocarbon wells in the area, for balneological and other uses. The WP concerned with the 'Overview of Potential Boreholes' includes the classification of the boreholes by geological data, and will sum-up the geological aspects of the influences of such power plants on the environment. The WP of 'Technical Feasibility Study' deals with the classification of the boreholes by technical parameters such as temperature, permeability and flow rates of the resource, the chemical parameters of the geothermal fluid etc. The investigation of the general and special environmental aspects has been devoted a separate WP, similarly to the determination of the policy and ownership barriers. The WP of the 'Economic Viability Study' involves the planning of the integrated feasibility model, the model will be built on the results of the above-mentioned vertical WPs.

The choice was Hungary as reference area, because it lies on a young back-arc basin, which was formed by lithosphere stretching, combined with major additional thinning of the subcrustal lithosphere [1]. So due to the raising of the mantle, heat of a considerable quantity has been being accumulated in the crust. The other reason beside the geological one is the fact, that Hungary is well explored, and the geothermal wells are frequent. Otherwise based on the country report [2], the utilization of the energy resources in Hungary is significantly underdeveloped in spite of the good natural conditions of the country.

The size of the power plants ('mini': 0,2-2 MW) has been fitted to the most available resources in Hungary.

Results

The two main scientific results of the project are the classification of boreholes and the description of the integrated feasibility model.

The description will include the methodology on the basis, the measure and the parameters taken into account during the realization of the model. At the end of the project the consortium intends to give recommendations for the direction of future research.

The results will be spread with the help of leaflets, newsletters, CD-ROMs and via the project website. The website has already been made available: www.geothermalpower.net

Discussion

With the help of the feasibility model in question, the viability of a mini-power plant to be constructed in a given place is quickly and clearly definable based on geological, technical, environmental and economic parameters.

The developed version of the model can be translated into any system, within the geothermal utilization or besides. The wide publicity and the initiation of end-users will help to develop the model to the eligible and right direction.

Conclusions

The overall result of project, beside the above-mentioned scientific ones, is to turn the attention to Hungary and the CEE countries, because this region possesses substantial low-enthalpy reserves. The project, if carried out successfully may become the initiator of future investments.
Presumably the project will start in April 2003 and will last until October 2004. The outcomes will be traceable via the project website.

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