



## **Post Doctoral Fellowship in Economics**

### **Cost-Benefits Valuation of the development of Geothermal Energy**

The Laboratory of Economics of Orléans (LEO) is proposing a one year Post Doctoral Fellowship in Economics, on a Cost-Benefit Valuation of a new legal framework encouraging the development of Geothermal Energy. This fellowship is taking part of the PREGO project (Geothermal Prefiguration of Deep Drilling) founded by the National Research Agency and headed by the french National Bureau of Geological and Mineral Research (BRGM).

The fellowship aims at evaluating the viability of a legal obligation of each deep underground drilling to look after a geothermal conversion. It will set up a multi-criteria assessment of such a legal obligation that could be compulsory after the end of the initial drilling. This assessment will require comparing the prefiguration costs of the geothermal energy equipment with the economic gains in terms of energy and heat it could locally entail. As this evaluation is highly site-dependant, the evaluation will be made at local, regional and national levels. It will also mobilize all the stakeholders in the geothermal energy field, according to the localization and scope of the considered drilling sites. The three economic, sociological, and environmental dimensions will be taken into account in order to identify the constraints and leverages regarding the implementation of such a legal framework. The analysis will be made in three times:

- At first a general literature survey will be made on the economics of deep geothermal energy, and more precisely on the potential that could be obtained from the existing deep underground drillings. This survey will also cover the applications of the real option models in the energy and mining sectors, which could be extended to the geothermal energy, and will use the results obtained from the other tasks of the PREGO Project.
- A second step of the project will evaluate, on one or several case studies, the cost and benefits of a legal obligation of designing each deep underground drilling regarding a later geothermal energy production. This step will require adapting the multi-criteria tools to the studied context, and will mobilize the field surveys made by the other tasks of the PREGO project.
- According to the results obtained on the preceding steps, a general decision tool will be designed, which could be applied to each new project including a geothermal prefiguration. It could refer to a real option approach, in order to evaluate the gains that could be obtained by the flexibility given by this geothermal prefiguration in an uncertainty situation on carbon and energy prices.

The candidate, doctor in economics, will have a background in the implementation of multi-criteria analysis and the different computing tools used in this field. Some knowledge in the real option valuation should be appreciated, as an experience in field survey. The fellowship will begin in October/November and will be located in the Laboratory of Economics of Orléans, UMR 7322 at the University of Orléans under the supervision of Mr Xavier Galiègue, Associate professor. He will collaborate with the different partners of the PREGO Project, on the BRGM sites of Orléans and Montpellier. The net wage will be around 2065€ a month.

Applications should be send before September 16 by E-Mail to [xavier.galiegue@univ-orleans.fr](mailto:xavier.galiegue@univ-orleans.fr). It will include a curriculum-vitae, a copy of the PhD Diploma, and a cover letter, the whole either in English or French.