Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Corporate Communications

ETH Zurich
Media Relations
Phone +41 44 632 41 41
Fax +41 44 632 35 25
media_relations@cc.ethz.ch
www.ethz.ch/media

Press Release

Sparking Off Research into Deep Geothermal Energy

Zurich, 7 May 2013. **ETH Zurich is to receive ten million Swiss francs from the Werner Siemens Foundation to establish a chair in deep geothermal energy. This will enable ETH Zurich to immediately fulfil its aim to launch an initiative in this promising field.**

Deep geothermal energy is regarded as a very promising technology, as it would allow previously unused heat energy from the ground to be tapped. ETH Zurich had decided some time ago to create two chairs in deep geothermal energy underlining its desire to play an active part in shaping Switzerland's future energy landscape. With a donation of 10 million Swiss francs to the ETH Zurich Foundation from the Werner Siemens Foundation, ETH Zurich can take firm steps to press ahead with its geothermal energy strategy by appointing its first chair.

"The very generous donation from the Werner Siemens Foundation will strengthen ETH Zurich's work on deep geothermal energy at just the right time," says Ralph Eichler, President of ETH Zurich "We must now make every effort to tackle the fundamental research for this form of geothermal energy quickly if we want it to deliver tangible benefits in ten to twenty years' time." The appointment process for the new chair in geo-energy has already begun. The future chair will be based in the Department of Earth Sciences.

Sending an Important Signal

The research and development of geothermal energy is a key component of the federal government's energy strategy to ensure that, in the future, more and more electricity and heat will come from renewable energy sources. The cantons and the business world also have a vital interest in this form of energy generation. "We are setting the path for future technological breakthroughs in an area that could have central importance for the Swiss economy," explains Ludwig Scheidegger, Chairman of the Board of Trustees for the Werner Siemens Foundation.

No household in Switzerland gets its electricity from a deep geothermal power station as yet. This form of energy is regarded as almost inexhaustible and has enormous potential. However, developing it for electricity production and for use in district heating remains a big challenge. Research is needed, among other things, into the geology of the bedrock from which the heat is to be extracted. However, technical problems must also be solved, such as developing suitable drilling techniques and the artificial fissuring of the bedrock.

Sounding Out Opportunities and Risks

For the time being, the main need is for research and demonstration facilities to determine the potential of deep geothermal energy in specific terms and make reliable forecasts for the future. Ralph Eichler believes that it will take a concerted effort by the government agencies involved and by researchers and the business world in order to raise up the energy hoard slumbering deep within the earth. He says that ETH Zurich will play its part by supplying the fundamental knowledge, innovative processes and the skilled personnel needed to construct and operate facilities of this kind in the future.

Domenico Giardini, Professor of Seismology and Geodynamics and ETH Zurich's delegate for deep geothermal energy, is equally delighted by the move to boost this highly promising area of research. He stresses the need for accurate research into innovative exploration techniques, monitoring instruments and the possible risks involved in deep geothermal energy and other geo-energies, so as to increase public trust in this technology. A new chair is the only way to achieve these aims.

Further information

ETH Zurich
Roman Klingler
Head of Media Relations
Phone +41 44 632 41 41
mediarelations@hk.ethz.ch

ETH Zurich Foundation
Corinna Adler
Director for Strategic Partnerships
Phone +41 44 633 69 60
corinna.adler@ethz-foundation.ch

Deep geothermal energy

Deep geothermal energy exploits the high temperatures in crystalline bedrocks four to six kilometres below the earth's surface. An artificially generated water cycle brings the heat to the surface of the earth to produce electricity and heat. The process involves drilling down into this layer of rock and fissuring it under high pressure to enable the water that is fed down into the rock to flow through it and thus be heated up to 200°C. Water already present in the rock can also be used. The heated water is carried back to the surface through a second borehole and is used for the continuous generation of electricity and to produce heat. This technology is still in its infancy in Switzerland and internationally. A deep geothermal borehole in the city of Basel was abandoned due to earthquakes. An experiment is currently under way near St. Gallen and in Lavey-les-Bains. Geothermal heat offers huge potential. One advantage of this form of energy is that it is regular and also controllable. More than 2,500 gigawatt hours (GWh) of geothermal energy were extracted in Switzerland in 2011, with over three-quarters of this originating from facilities using geothermal heat probes. Due to the energy's high potential, experts expect around a dozen deep geothermal power stations to spring up by 2030, producing 800 GWh of electricity.

*The **Werner Siemens Foundation** is based in Zug and focuses its not-for-profit activities on the areas of research, education and training, particularly in the fields of technology and the natural sciences. A prerequisite for funding projects is the Foundation's desire to achieve pioneering results with significant, quantifiable potential., Projects of key social and economic significance are also supported. The Foundation celebrates its 90th anniversary this year.*

***ETH Zurich** is one of the leading international universities for technology and natural sciences. It is well known for its excellent education, ground-breaking fundamental research and for putting its new findings directly into practice. Founded in 1855, ETH Zurich today has around 18,000 students from over 100 different countries, 3,800 of whom are doctoral students. It offers researchers an inspiring working environment and its students a comprehensive education. 21 Nobel Laureates have studied, taught or conducted research at ETH Zurich, underlining the institute's excellent reputation .*
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