

## Technology Offer

### Thermoelectric conversion equipment

#### Summary

*A Romanian university has developed a device that statically converts geothermal water heat into electricity. The device is already a prototype available for demonstration and some of its main advantages are: high reliability of the entire system, operational simplicity and possibility of using geothermal water for heating systems. The Romanian university is looking for research, academia and production partners, for further development of the product and for technological transfer.*

<b>Creation Date</b>	30 September 2014
<b>Last Update</b>	28 September 2015
<b>Expiration Date</b>	05 April 2016
<b>Reference</b>	TORO20140929001

#### Details

##### Description

The thermoelectric conversion equipment is based on the following operating principle: one surface of the thermoelectric generator is brought into contact with a high temperature source while the other surface is in contact with a cold source. The high temperature is coming from the geothermal water, while the low temperature is due to the cold water circuit. One can maintain a constant temperature difference during the operation of the system. On this principle, the thermal energy of the geothermal water is converted into electricity. The temperature of geothermal water is ranged between 82 – 84 degrees Celsius. For the moment, the maximum yield is 8 ÷ 10%, but it can be improved, as the equipment is in tests. The equipment has been designed and built by a team of researchers that activate in the non-conventional energy field, geothermal field and other adjacent areas, being the result of long and laborious research. The Romanian university is looking for partners in the field of research, academia and industry in order to develop the product (research cooperation agreement) and for its technological transfer (technical cooperation agreement).

##### Advantages and Innovations

- the conversion process is static;
- the system has high reliability, is silent in operation and is fully automated;
- it is simple to use, not heavy duty and can easily be installed near the source of geothermal water;
- the equipment is completely clean and does not change the ambient temperature when used;
- economic benefits (e.g. electricity can be stored until use - direct current or single phase alternative current);
- the proposed equipment is much cheaper and more reliable.

##### Stage of Development

Prototype available for demonstration

## IPR Status

Other

## Comment Regarding IPR status

The thermoelectric conversion equipment is subject of a patent that is to be registered at the Romanian State Office for Inventions and Trademarks.

## Profile Origin

Other EU programme

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## Keywords

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### Technology

04005001      Geothermal energy

### Market

06003005      Geothermal energy  
06007001      Other energy production

### NACE

P.85.4.2      Tertiary education

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## Network Contact

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### Issuing Partner

NATIONAL INSTITUTE OF RESEARCH AND DEVELOPMENT FOR OPTOELECTRONICS

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**Open for EOI :**    **Yes**

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## Dissemination

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### Send to Sector Group

Intelligent Energy

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## Client

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### Type and Size of Organisation Behind the Profile

University

### Year Established

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### Already Engaged in Trans-National Cooperation

Yes

### Languages Spoken

English

### Client Country

Romania

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## Partner Sought

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### Type and Role of Partner Sought

The partners sought are :

- research organizations that can work jointly with the Romanian university in order to improve the conversion efficiency, to develop its automation degree, to solve issues raised by the use of the thermal energy of the geothermal water at its output from the installation, solving problems on longer storage of the electricity, determining the optimal form of electricity usage- direct current or single phase alternative current, etc.;
- academia partners for further development of the product;
- production partners for technological transfer.

### Type and Size of Partner Sought

SME 11-50, University, R&D Institution, SME 51-250

### Type of Partnership Considered

Technical cooperation agreement  
Research cooperation agreement