

## Technology Offer

### Geothermal electric power station

#### Summary

*A research team from a Romanian university has developed a geothermal electric power station, which converts the thermal energy of the geothermal water into electricity, using CO<sub>2</sub> as working agent. Its main advantages reside in a) using non-pollutant energy sources (geothermal energy) and b) low cost of electricity production. The Romanian research team is looking for a partner interested in purchasing the conversion technology that is to be adapted on its proper station or on a new one.*

<b>Creation Date</b>	11 September 2015
<b>Last Update</b>	24 November 2015
<b>Expiration Date</b>	24 November 2016
<b>Reference</b>	TORO20150911001

#### Details

##### Description

A Romanian research team from a famous university has developed a geothermal electric power station, which can be used for geothermal waters having temperatures below 100 Celsius degrees. The proposed variant is a binary electric station which has a secondary fluid that evolves following a thermodynamic engine cycle, where the geothermal water represents the hot source of the cycle.

The installation of the geothermal electric power station includes a battery of vaporizers, a motor body coupled to an AC power generator, 2 condenser batteries, a buffer vessel and a liquid carbon dioxide pump. The supply with geothermal water is made through a pipeline connected to the drill station while the cooling water supply is coming from the existing drills in the groundwater.

The geothermal electric power station is endowed with a SCADA monitoring, control and data acquisition system, allowing both automatic and manual functioning mode.

As regarding the state of the art, until now, this kind of installation was made only in Iceland. The Romanian research team is looking for an SME willing to buy the technology.

##### Advantages and Innovations

- obtaining electricity from non-pollutant energy sources (geothermal water);
- the conversion of the thermal energy of the geothermal water into electricity, using carbon dioxide as working agent;
- the station can use geothermal waters with temperatures below 100 Celsius degrees;
- the station functioning, using an optimum thermodynamic cycle, supposes the provision with the heat transfer necessary between the CO<sub>2</sub> and the geothermal water, respectively the cooling water;
- low production costs.

##### Stage of Development

Field tested/evaluated

## IPR Status

Exclusive Rights

## Comment Regarding IPR status

The exclusive property rights belong to the offering Romanian university.

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## Keywords

### Technology

04002005	Generators, electric engines and power converters
04005001	Geothermal energy

### Market

09008001	Electric companies
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### NACE

D.35.1.1	Production of electricity
D.35.1.2	Transmission of electricity

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## Network Contact

### Issuing Partner

NATIONAL INSTITUTE OF RESEARCH AND DEVELOPMENT FOR OPTOELECTRONICS

### Contact Person

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**Open for EOI :**   **Yes**

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## Client

## Type and Size of Organisation Behind the Profile

University

## Year Established

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## Already Engaged in Trans-National Cooperation

No.

## Languages Spoken

English

## Client Country

Romania

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## Partner Sought

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### Type and Role of Partner Sought

- Type of partner sought: industry
- Specific area of activity of the partner: electricity supplier
- Task to be performed by the partner sought: The potential partner is offered to buy the presented technology, which he will have to adapt on its existing installation or on a new purchased one.

The Romanian research team will support its partner with technical assistance regarding the necessary adaptations.

### Type and Size of Partner Sought

SME 11-50, SME <10, 251-500, SME 51-250

### Type of Partnership Considered

Commercial agreement with technical assistance