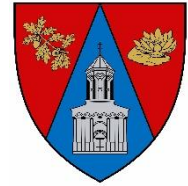


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“Geothermal energy in Ilfov County - Romania”

**Ionut TANASE
Ilfov County Council
October, 2019**

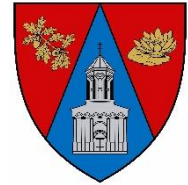
Content



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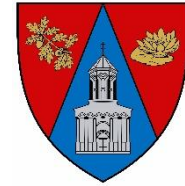
- 1. Geothermal resources in Romania**
- 2. Geothermal resources in Bucharest-Ilfov Region**
- 3. Project “Harnessing geothermal water resources for district heating the Emergency Hospital «Prof. Dr. Agrippa Ionescu», Balotesti Commune, Ilfov County”**
- 4. Project “The development of geothermal potential in the counties of Ilfov and Bihor”**
- 5. Project ELI-NP (GSHP)**
- 6. Possible future project in Ilfov County Romania**

Geothermal resources in Romania



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- The research for geothermal resources for energy purposes began in the early 60's based on a detailed geological programme for hydrocarbon resources.
- The geothermal potential - low-temperature geothermal systems
- porous permeable formations such as the Pannonian sandstone, and siltstones specific (Western Plain, Olt Valley) or in fractured carbonate formations (Oradea, Bors and North Bucharest (Otopeni) areas).
- First well for geothermal utilisation in Romania (Felix SPA Bihor) was drilled in 1885 to a depth of 51 m, yielding hot water of 49°C, maximum flow rate 195 l/s.
- Since then over 250 wells have been drilled with a depth range of 800-3,500 m, through which were discovered low-enthalpy geothermal resources with a temperature between 40 and 120°C.
- The total installed capacity of the existing wells in Romania is about 480 MWth (for a reference temperature of 25°C).



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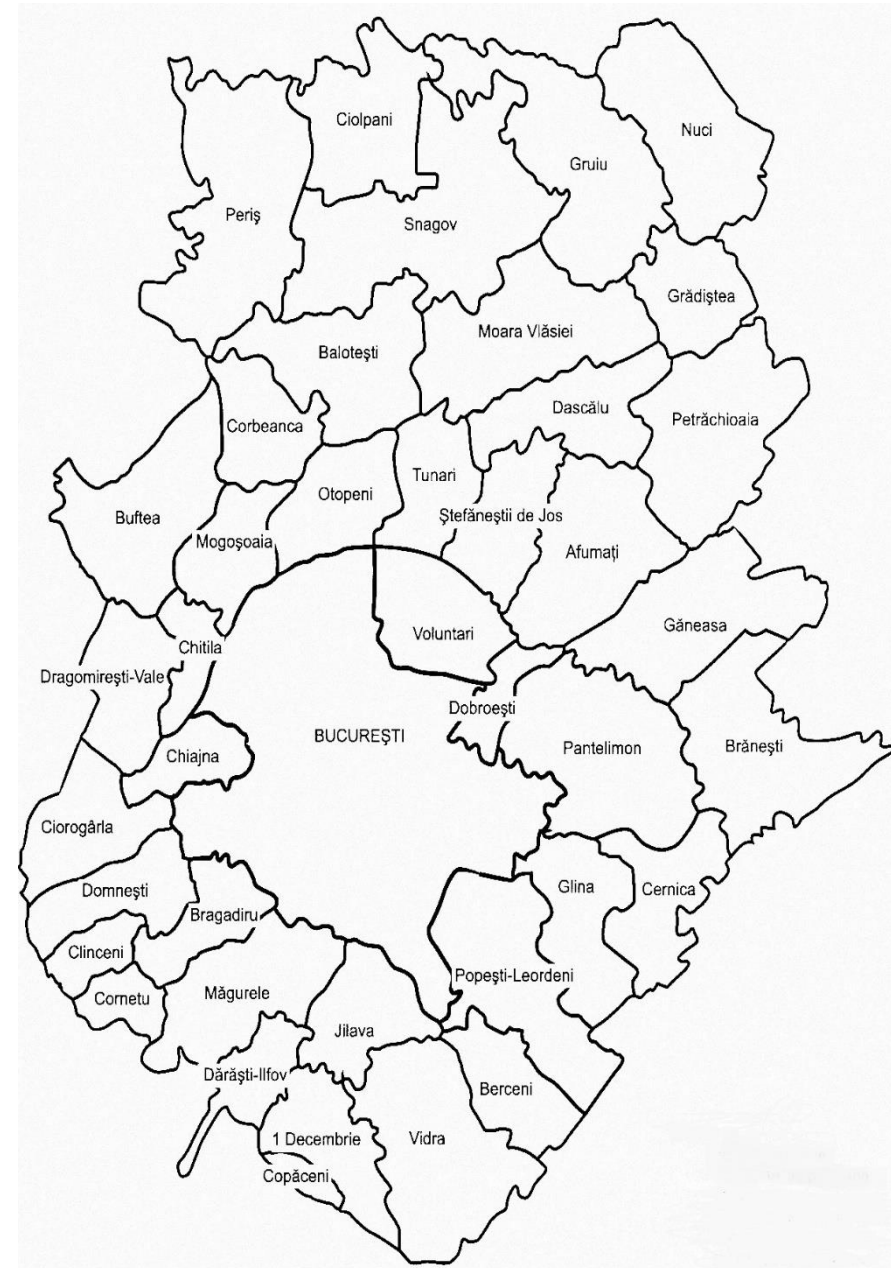


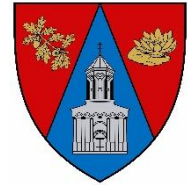
The main geothermal reservoirs (Bendea et al., 2015)

Geothermal resources in Bucharest-Ilfov Region

Otopeni geothermal reservoir (Rosca et al., 2010)

- **Location:** North of Municipality of Bucharest (North of Ilfov County)
- **Area:** 300 km²
- **Drilled wells:** 24 (18 wells – production or injection)
- **Geology structure:** sedimentary rocks (limestone and dolomites)
- **Location of geothermal aquifer:** 2000-3200 m
- **Temperature gradient:** 2.3 ÷ 2.6 °C/100 m
- **Wellhead temperature:** 58 – 84 ° C
- **Flows:** 22 ÷ 28 l/s

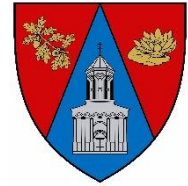




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Project “Harnessing geothermal water resources for district heating the Emergency Hospital «Prof. Dr. Agrippa Ionescu», Balotesti Commune, Ilfov County”

- **Financed under the RO 06 Renewable Energy Programme RONDINE within EEA Grants 2009-2014**
- **Programme Operator: Environment Fund Administration**
- **Project Promoter: Ilfov County Council**
- **Geothermal component of the RO 06 Renewable Energy Programme RONDINE**

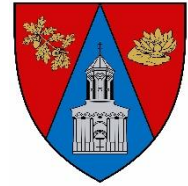


Ilfov County Council

General Objective

Harnessing geothermal water resources from Balotesti North Perimeter for district heating the Emergency Hospital «Prof. Dr. Agrippa Ionescu», located in Balotesti Commune, Ilfov Council

- Duration: 05.12.2014 - 30.04.2017
- Total budget of the project: aprox. 2.1 mil EUR, *of which*:
Contribution of Ilfov County Council: aprox. 0.45 mil EUR
Grant: aprox. 1.7 mil EUR
- Beneficiary: aprox. 12,000 persons every year
- Current status: in operation since October 2016



Ilfov County Council

The main investments

1. Rehabilitation and testing of the Balotesti Well 2684
2. Construction of well cabin and installing geothermal pump (25 l/s)
3. Construction of geothermal plant - fully equipped
4. Round-trip circuit for heat and hot water circuit
5. Tank storage for geothermal waste water - 500 m³
6. Exhaust pipe for geothermal wastewater
7. Connections to consumer (s)



Geothermal plant and waste water storage tank



Exploitation unit of geothermal plant

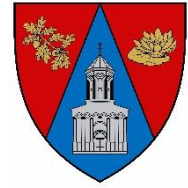


Well Cabin 2684 Balotesti



**Line shaft pump in Balotesti well
2684 (25l/s)**

Project “The development of geothermal potential in the counties of Ilfov and Bihor”



Ilfov County Council

Financed within RO 05 Energy Efficiency Programme-Bilateral Relations Fund, EEA Grants 2009-2014

Programme Operator: Ministry of European Funds

Project Promoter: Ilfov County Council

Partners:

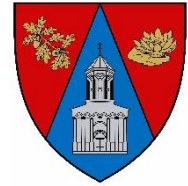
Intercommunity Development Association Oradea Metropolitan Area

ISOR Iceland GeoSurvey

Duration: 22.05.2017- 31.10.2017

Total budget (Grant) : aprox. 63.000 EUR

Activities during the project: Exchange experience between Romanian partners and ISOR Iceland GeoSurvey in Romania and Iceland, including field visits and lectures.



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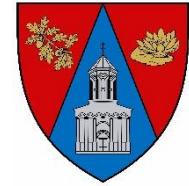
General objective aimed to increase awareness of policy makers from Ilfov and Bihor counties about sustainable geothermal development.



Romanian delegation visiting Reykjavik Energy, June 2017

Project

“Extreme Light Infrastructure – Nuclear Physics”



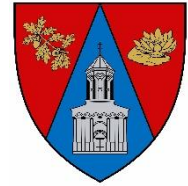
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City	No of BHE	Depth BHE (m)	Total depth BHE (m)	No of heat pumps	Instaled capacity (MWth)
Magurele	1,080	125 m	13,500	80	5.5

Largest GSHP application in Romania

Current status: under construction (it is expected to be in operation at the end of 2019)



Ilfov County Council

Possible geothermal projects in Bucharest – Ilfov Region

- **Harnessing geothermal resources from Otopeni Area for district heating and medical purpose (balneology) at National Institute of Gerontology and Geriatrics “Ana Aslan”- Otopeni**
- **District Heating of International Airport Henri Coanda - Otopeni**
- **District Heating in Municipality of Otopeni**
- **Extend geothermal investments with new wells in the north part of Ilfov County at Tunari Commune and surrounding for district heating and medical spa**
- **New medical, wellness and entertainment centers in the North of Ilfov County in order to increase medical and recreational tourism in Bucharest-Ilfov Region**
- **Investments in the North East of Ilfov County at Gruiu, Snagov, Dascalu and Moara Vlasiei especially for agriculture**

References

Rosca, M., Antics, M., and Sferle, M., 2005: Geothermal energy in Romania: country update 2000-2004. *Proceedings of the World Geothermal Congress 2005 Antalya, Turkey*, 8 pp.

Rosca, M., Antal, C., Bendea, C., 2010: Geothermal Energy in Romania: Country Update 2005-2009, *Proceedings of the World Geothermal Congress 2010, Bali, Indonesia*, 9 pp

EEA Grants, 2017: EEA Grants, Website: <http://eeagrants.org/>

The Ministry of Regional Development, Public Administration and European Funds, 2017: The Ministry of Regional Development, Public Administration and European Funds, Website: <http://www.fonduri-ue.ro/>

Environment Fund Administration, 2017: Environment Fund Administration, Website: [ww.afm.ro/](http://www.afm.ro/)

Ilfov Geothermal, 2017: Ilfov Geothermal, Website: www.ilfovgeothermal.ro

Rondine, 2017: Rondine , Website: <http://www.rondine.ro/>

Ilfov County Council, 2017: Ilfov County Council, Website: <http://www.cjilfov.ro/>

Thank you!



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Mogosoia Palace
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