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Zero Emission

# **CLEAG Geothermal**

**Pilot Plant in Croatia**

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**Power Plays: Geothermal Energy in Oil and Gas Fields**

May 20, 2015. SMU Campus in Dallas, Texas

1. Geology
2. Technology
3. Possibilities in the USA

These conditions are in the Pannonian



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# Geology

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Heat Flow Map

 ← Draskovec

## Thermal Water Drillings: Croatia, Austria, Slovenia, Hungary





## Aquifer Properties – Around Draškovec-1

<b>Lithology:</b>	Sandstone ("Donja Ratka"/ Tertiary)
<b>Thickness:</b>	46 m (average), max. 230 m
<b>Porosity:</b>	24% (average)
<b>Permeability:</b>	21-54 mD (max 200 mD.)
<b>Flow rate:</b>	13.1 l/ s (artesian, bore Draškovec-1)
<b>Formation temperature:</b>	100 ° C
<b>Salinity:</b>	12 g /l TDS (NaCl/ HCO <sub>3</sub> )
<b>Gas content:</b>	3 - 3.5 Nm <sup>3</sup> / m <sup>3</sup>
<b>Gas composition:</b>	94% CH <sub>4</sub> , 6% CO <sub>2</sub>







Technology

# CloZEdLoop Energy technology





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# Technology

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# Energy Output

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# Reinjection of CO<sub>2</sub>

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### Oil/Gas Fields are Waterfields - Lin

- Can be reactivated
- Then run for decades profitably
- Provided there is a user of heat/ cooling in the neighbourhood

