Switching the district heating of Szeged to geothermal

Dr. Tamás Medgyes

Chief Operations Officer – DHC of Szeged

SZETÁV Szegedi Távfűtő Kft.

Szeged

- Pop: 163,000
- Seat of Csongrád County
- Centre of Southern Great Plain region
- Food industry
- Thermal baths
- Hospitals, clinics
- University of Szeged
- Near the Romanian / Serbian border

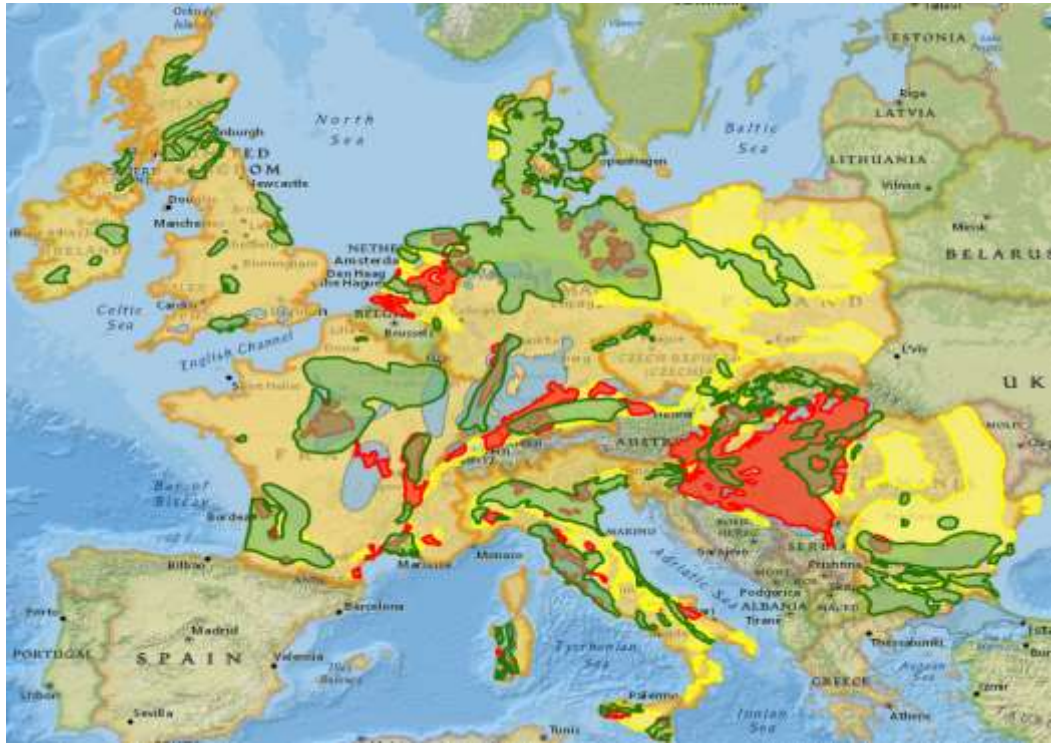
The 2010’s – Geothermal is penetrating the heat market of Szeged

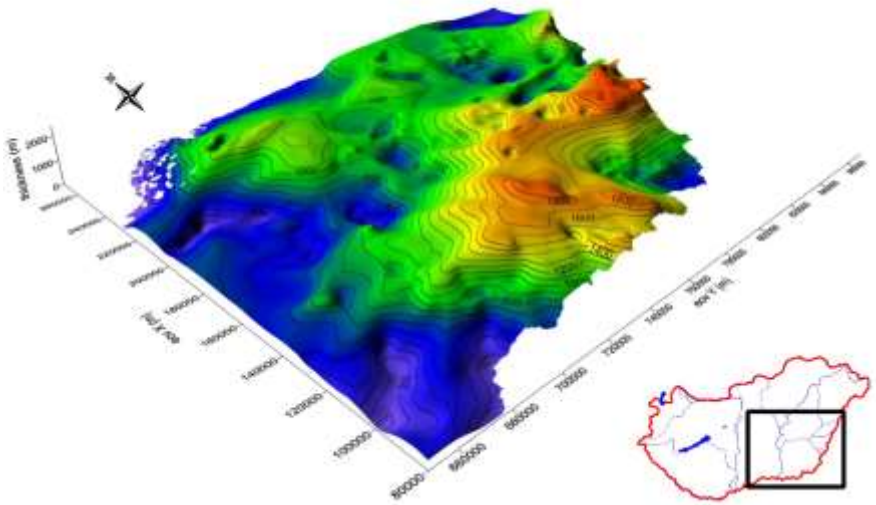
- 2014: Two privately owned geothermal heating circuits are built and start to operate in Szeged providing for the University, the single largest heat consumer in the city

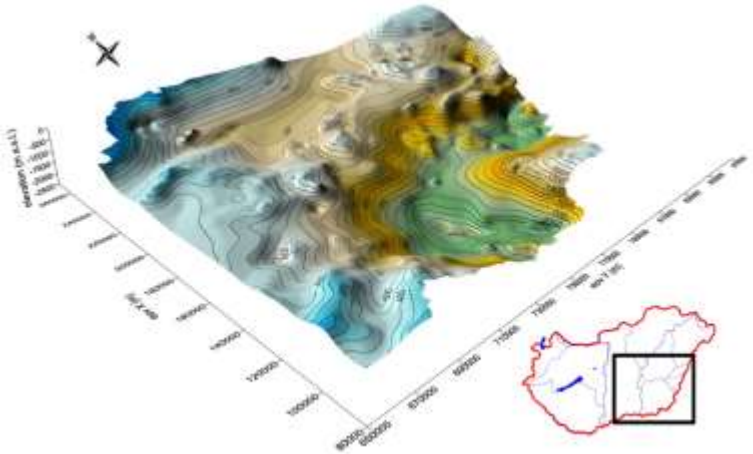
- 2017: Integration of geothermal energy is initiated in the 15 largest heating circuits of the DH Company in Szeged (the single largest air polluter of the city), offering a cleaner and more secure alternative for DH and HMW production

Circumstances 1

- Thickness of the thermal aquifer: 1,800 – 2,000m
- Geothermal gradient: 150% of the world average
- Average well yields: 90 °C, 70m^3 /hour
- Reservoir well researched by hydro-carbon industry
- Already operating geothermal systems, SPA's in nearby towns

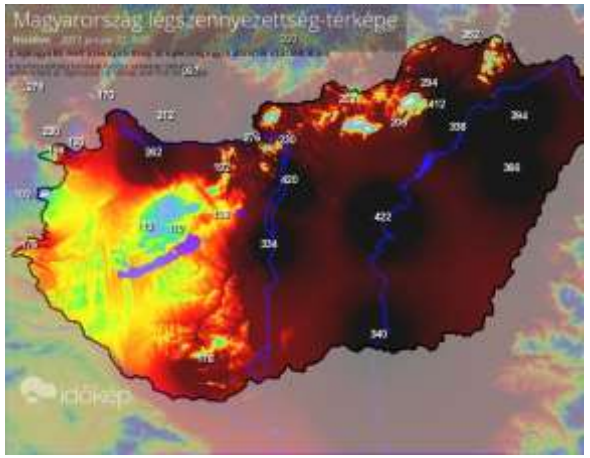




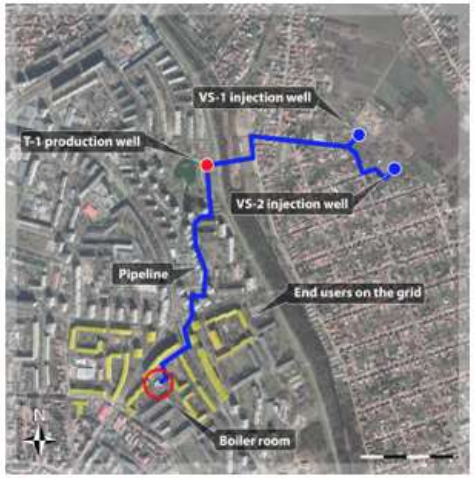


Circumstances 2

- sizeable heat-market
- insecure and expensive energy supply
- run-down DH infrastructure
- bad air quality
- natural gas from free market, state controlled end-user prices



Switching our heating circuits to geothermal



Summary of the 9 projects

Started late 2019

Total budget: 63 000 000 Euro's

50% EU fundnig (ERDF), 50% private investment of the drilling / operator company

Total number of residences affected: 26 338 (97%)

Total number of institutions affected: 233 (54%)

Natural gas saving (energy): 595 887 GJ/year (82%)

Natural gas saving (volume): 17 525 718 m^3 /year (68%)

Thermal energy in district heating: 536 298 GJ/year

CO_2 emmission saving: 34 699 t/year (65%)

SZETAV will purchase the heat content from the geothermal operator and pre-heat the return water before entering the boilers.

Progress so far – lessons learnt

Progress

Drillings are on-going

2 rigs working in the city 24/7

9 wells are completed, 2 being drilled simultaneously

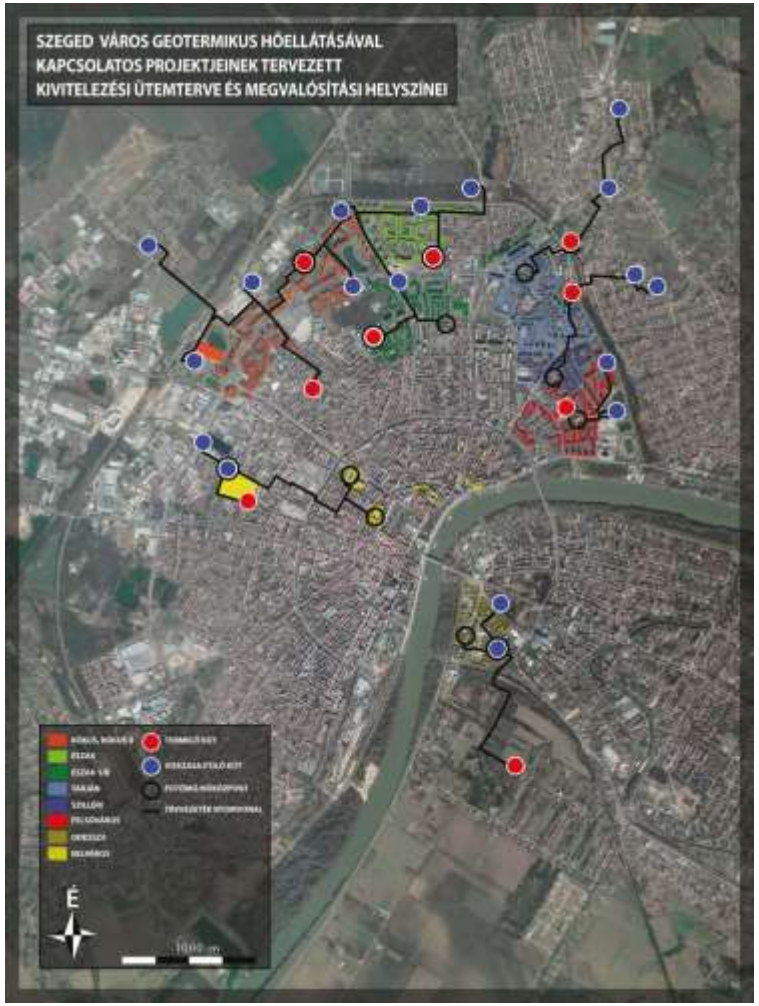
Lessons learnt

Good communication, having the community embrace the project is vital in order to obtain the SLO

Joining forces with the municipality, having local enterprises involved is essential for succesful decision making and smooth implementation

Huge (upfront) costs need to be justified: either lower heating bills or measurable environmental benefits.

Thank you and hope to see you in Szeged where the future is geothermal



CROWDTHERMAL