

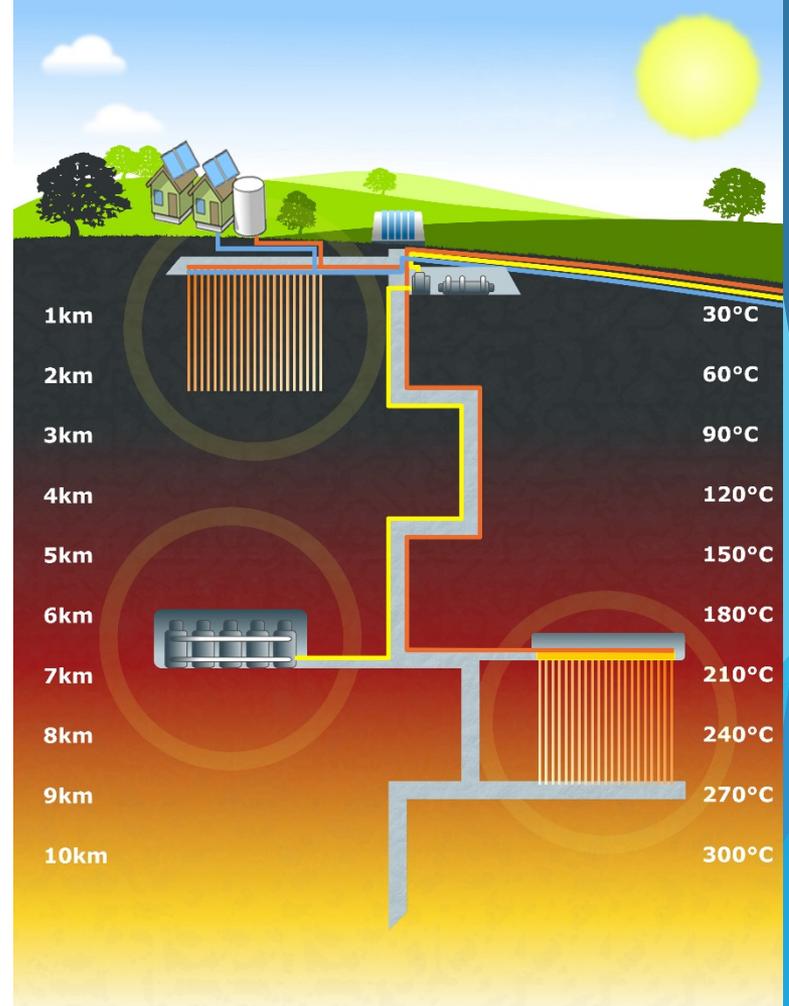
The Concept of Energy System based on Deep Geothermal

MULTIFUNCTION ENERGY SHAFT

„All that is necessary to open up unlimited resources of power throughout the world is to find some economic and speedy way of sinking deep shafts.“ Our Future Motive

Power, 1931.

Nikola Tesla



Comparison of the Capacity of 1 Borehole and 1 Artificial Fracture

1 Borehole:

Temperature: 200°C

Diameter: 0,16 m

Height: 200 m

Number of heat transferring surfaces: 1

Overall heat transferring surface: 100 m²

1 Artificial fracture:

Temperature: 200°C

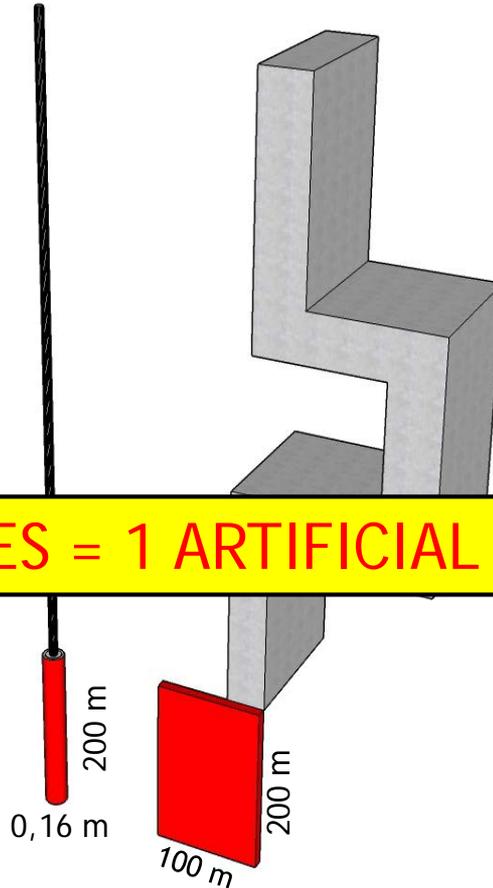
Length: 100 m

Height: 200 m

Number of heat transferring surfaces : 2

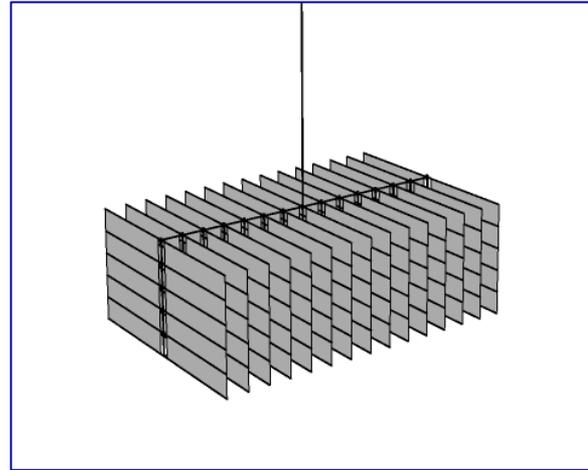
Overall heat transferring surface : 40 000 m²

400 BOREHOLES = 1 ARTIFICIAL FRACTURE



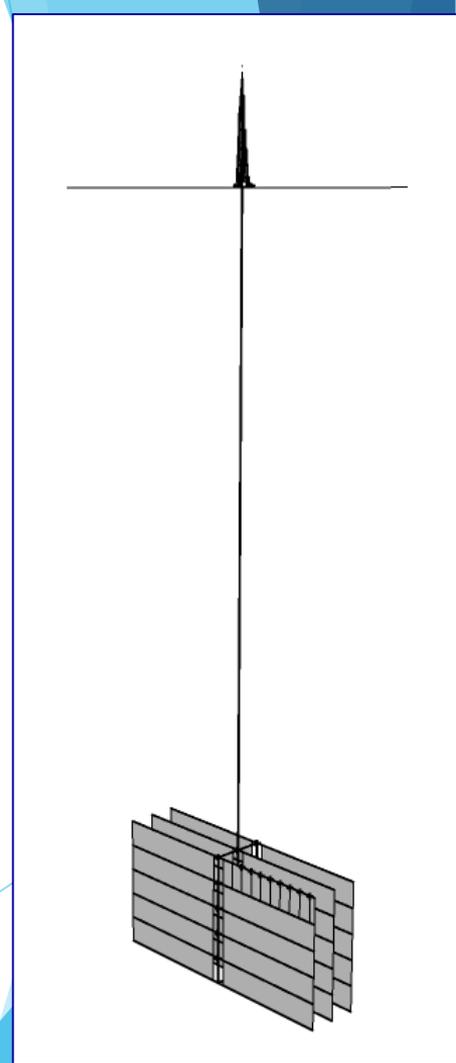
Advantages of the Presented System

- ▶ Calculable
- ▶ Inspectable
- ▶ Serviceable
- ▶ Modularity, the shaft and fracture variability

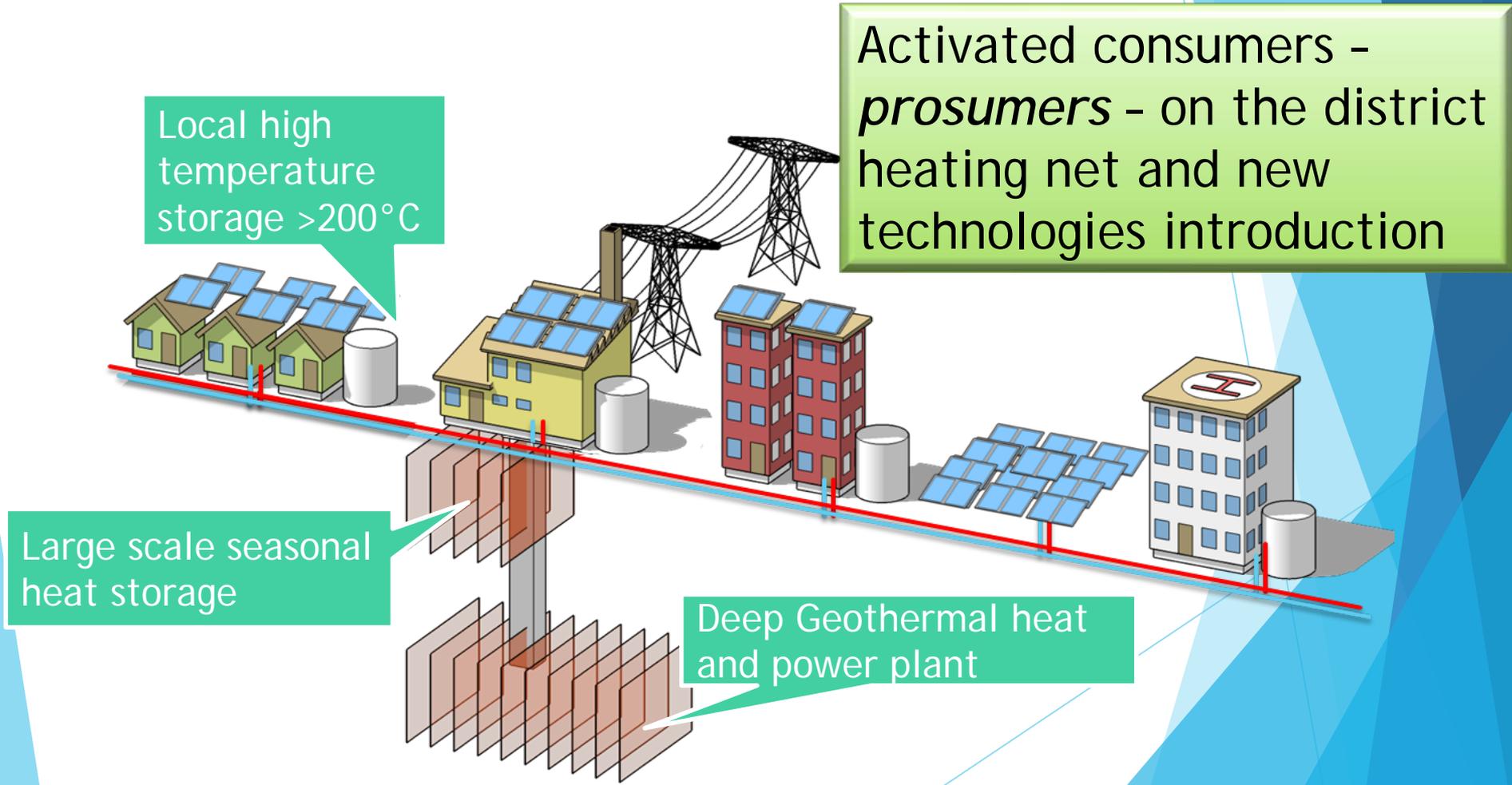


1020 MW - 30 years

200 MW - 30 years



3. Introducing open energy systems



THE SHAFT-BASED ENERGY SYSTEM CONCLUSION

- Energy Shaft is a realistic competitor to conventional drilling
- The block excavation method is ten times cheaper than conventional drilling:
 - The cost for 1 m³ drilled or blasted material - 4 to 6 Euro
 - The cost for 1 m³ material excavated by block method - 0.50 Euro
- Energy Shaft allows both utilization of shallow geothermal and deep geothermal energy
- Energy Shaft allows efficient connection to the district heating system and electric grid
- Energy Shaft provides the technical and economic feasibility of responding to commands from a grid operator



Thank you for
attention

www.dividend.se

František Zvrškovec

Coordination for Slovakia

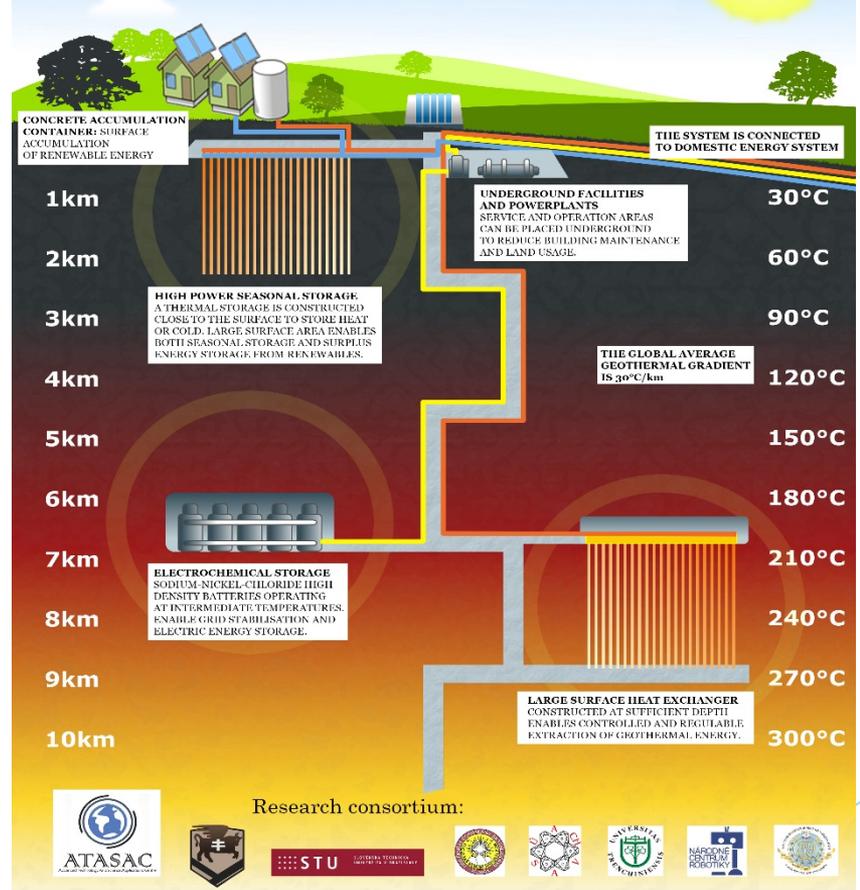
Email: alexander@dividend.se

Christoffer Källberg

Coordination for Sweden

Email: christoffer@dividend.se

Multifunction Energy Shaft Geothermal Energy System



ACCUMULATION OF RENEWABLE ENERGY ON THE SURFACE



HIGH POWER SEASONAL STORAGE

ELECTROCHEMICAL STORAGE

UNDERGROUND TECHNICAL FACILITIES AND POWERPLANTS

LARGE SURFACE GEOTHERMAL-HEAT EXCHANGER