



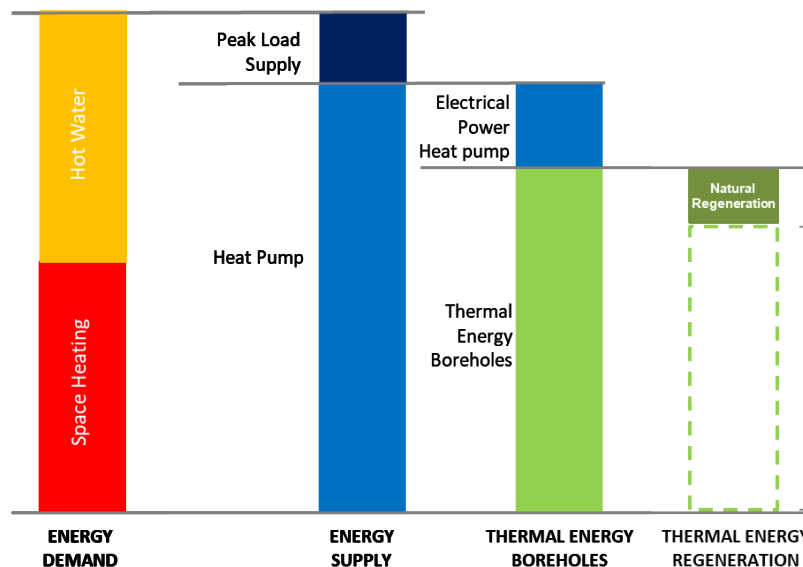
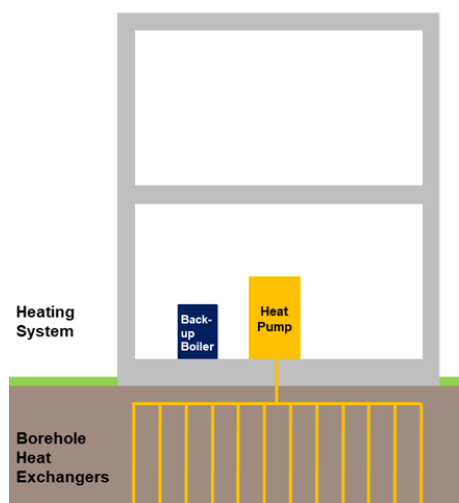
ecoRegeneration

Cost-effective solutions for thermal regeneration of seasonal borehole heat exchangers in urban residential settlements



Background

- Developments of new residential buildings and districts
- Energy supply systems with low greenhouse gas emissions
 - Extended use of local, renewable energy resources
- Promising concept: **Heat pumps in combination with borehole heat exchangers**



Thermal Energy for **Regeneration** to ensure the **Energy Balance** in the Borehole Field for Decades

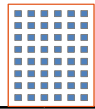
Approaches of Regeneration Heat

- **Waste heat of industrial enterprises in the ground floor areas of residential buildings (e.g. supermarket)**
- **Waste heat of targeted settlement of data centre**
- **Waste heat by cooling the building (free cooling and active cooling systems)**
- **Local renewable energy sources**
 - Solar thermal Flat Plate Collectors
 - Solar thermal Absorber
 - PVT Hybrid Collectors
 - Air Heat Exchanger
- **Determination of Regeneration - Heat Generation Costs for 4 different Building Scenarios**

Regeneration – Heat Generation Costs

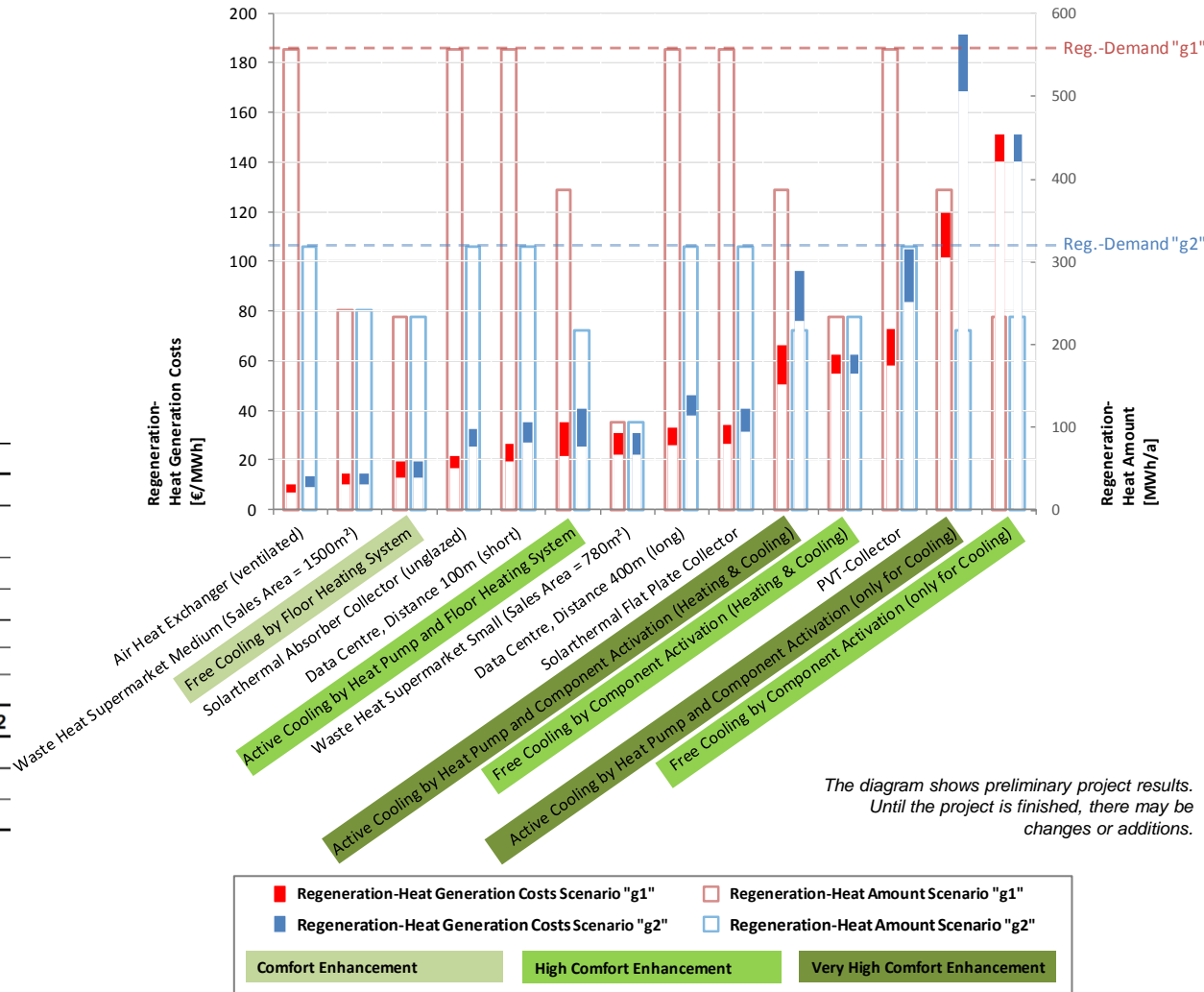
- **Method**
 - Life cycle cost analysis
- **Period under review**
 - 30 Years

Building Data „Large Building“



BUILDING	Unit	Large Building	
Location	-	Vienna	
Local Climate: Amount of Hours at $T_{\text{ambient}} \geq 18^{\circ}\text{C}$	h/a	2398	
Gross Floor Area	m ²	18 000	
Living Space	m ²	13 500	
Floors	-	6	
Average Living Space of Flats	m ²	90	
Amount of Flats	-	150	
ENERGY DEMAND	Unit	Scenario g1	Scenario g2
Space Heating	MWh/a	630	360
Hot Water	MWh/a	504	396
Total Energy Demand	MWh/a	1 134	756

Scenarios „Large Building“



The diagram shows preliminary project results. Until the project is finished, there may be changes or additions.

Contact



Paul Lampersberger

e7 Energie Markt Analyse GmbH

Walcherstraße 11/43

1020 Wien

T +43 1 907 80 26

paul.lampersberger@e-sieben.at

www.e-sieben.at

