Technology
Arts Sciences
TH Köln

Master Project
Prof. Dr. Eberhard Waffenschmidt
Master Renewable Energies - Faculty 09

Heating Concepts for Quarters

HEEAT the interactive Heating Solution Tool

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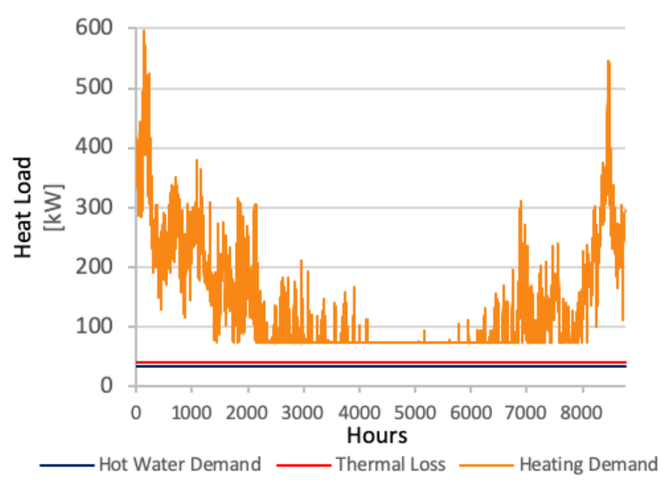
ABSTRACT

In times of rising environmental awareness climate protection targets are set, which will further restrict greenhouse gas emissions and energy consumption. Developers are now deciding to build houses with higher construction standards as currently needed, trying to match prospective requirements. However, selecting the best heating solution for a projected estate can be a difficult objective. In order to accomplish this target, the purpose of this Master Project is to develop an interactive heating solutions tool. The EXCEL VBA based HEEAT – Tool offers a highly functional opportunity to simulate and compare different heating concepts for quaters.

HEEAT

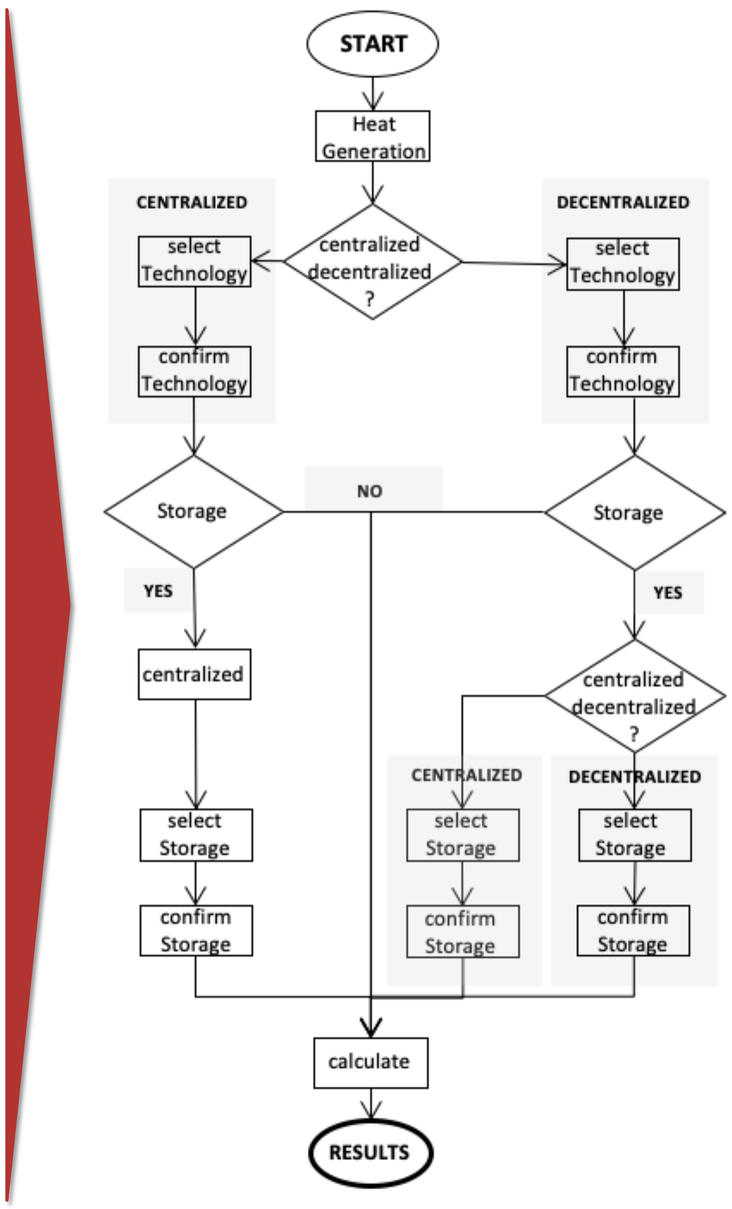
DESIGNING THE QUARTER

Construction Standard	Storey Heigth
Structure	Wall Thickness
Floor Space	Window Surface



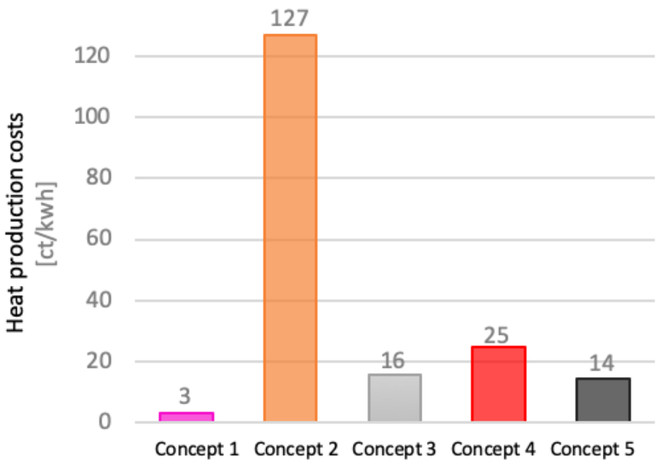
TECHNOLOGY SELECTION

Concept	Heat Generator	Storage
1	Natural Gas Boiler	
2	Solar Thermal Installation *(E-W)*	Gravel Water Heat Store
3	Biogas CHP	
4	Solar Thermal Installation *(E-W)*	Hot Water Cylinder
5	Heat Pump *(Geo)*	

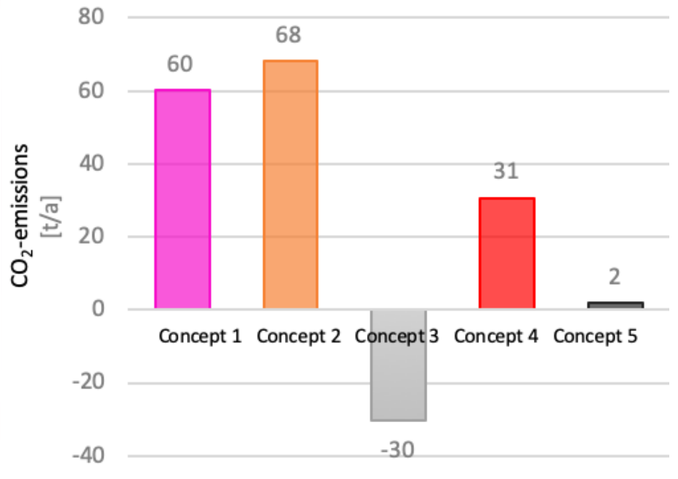


RESULTS

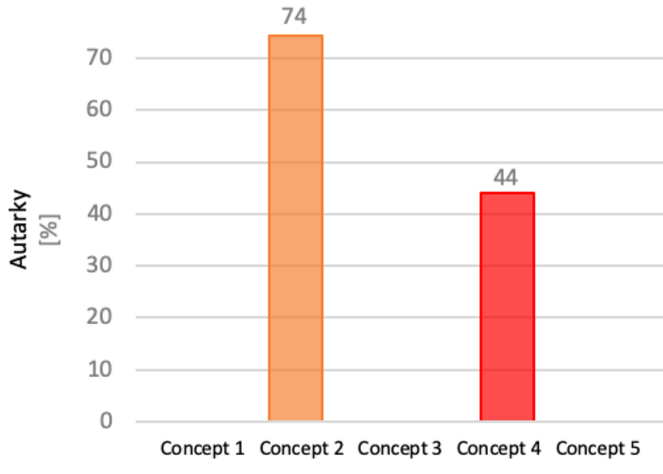
HEAT PRODUCTION COSTS



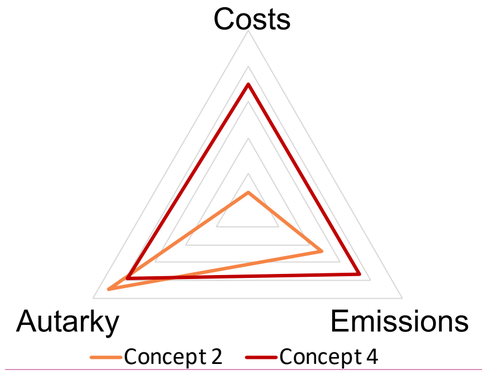
CO_2 EMISSIONS



DEGREE OF AUTARKY



CONCLUSION



No **PERFECT** Solution

Decision has to be based on User – Requests

\+ Solar Power increases degree of autarky

− *Constant updating of underlying data is required*

HEEAT