Analyse und Optimierung eines geplanten Energiesystems im Ludwigshöhviertel

TECHNISCHE UNIVERSITÄT DARMSTADT

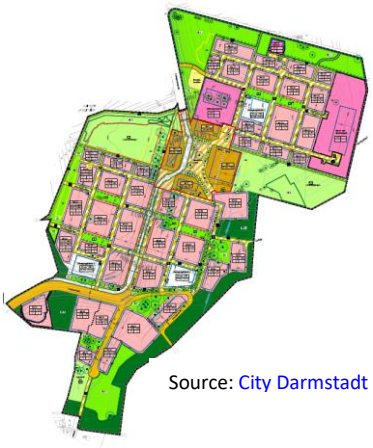
ISM+D
Institute of Structural Mechanics and Design
Institut für Statik und Konstruktion

Analysis and optimization of a planned energy system in the Ludwigshöhviertel

Master thesis/Bachelor thesis
from the field of energy efficient construction and energetic networking

Topic:

On the former site of the Cambrai-Fritsch barracks and the Jefferson-Siedlung in the south of Darmstadt, the Ludwigshöhviertel is being built in the form of a new urban district for around 3000 residents. The development of such a district with numerous new buildings, but also listed old buildings, offers great potential for testing innovative and sustainable (heat) supply concepts with the lowest possible greenhouse gas emissions, especially in the usage phase. Heat and electricity are to be provided by borehole heat exchangers, heat pumps, CHPs, photovoltaics and PVT systems.



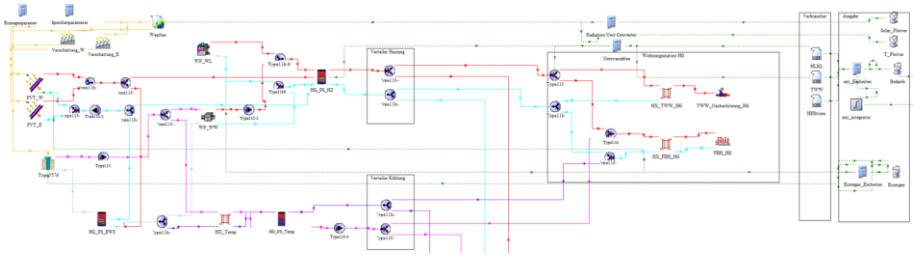
Source: City Darmstadt

Task:

As part of the living lab DELTA (Darmstädter Energie-Labor für Technologien in der Anwendung), the building and energy system model of a part of the district is currently being created. Various energetic analyses are to be carried out on the basis of this model.

Possible focus areas:

- Optimization of the energy system through changed constellations of the energy producers or the operating mode
- Investigation of the influence of various boundary conditions such as weather data and usage behaviour
- Investigation of the sensitivities of the energy system with regard to changes in the energy flows
- Influence of a reduced level of detail on the accuracy of the simulation results
- Own ideas



Academic supervisor: Xenia Kirschstein
kirschstein@ismd.tu-darmstadt.de
Institute of Structural Mechanics and Design
Room L5|06 420