Master’s Thesis

**UrbanEnergyPro: Bottom-up modeling of the urban energy demand**

**Background**
Urban energy consumption plays a key role in the energy transition as they account for about 64% of the global primary energy use and produce 70% of the total carbon dioxide emissions. Modeling the energy consumption in cities with a high temporal and spatial resolution is necessary for the understanding of current energy use patterns and for deriving paths towards a green and sustainable urban future. This thesis has the objective of improving an existent energy demand model and use it for simulating the energy demand of Munich.

**Goals**
1. Literature review on activity-based energy models
2. Development of ontology for urban energy systems
3. Tight-coupling of UrbanHeatPro, UrbanColdPro and REM (electricity)
4. Application of tool with an study case in Munich

**Requirements**
- Good programming skills: python, Matlab
- Working language: English or German

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