



UMEM: Urban Multiscale Energy Modelling

Sustainable cities and urban energy systems of the future

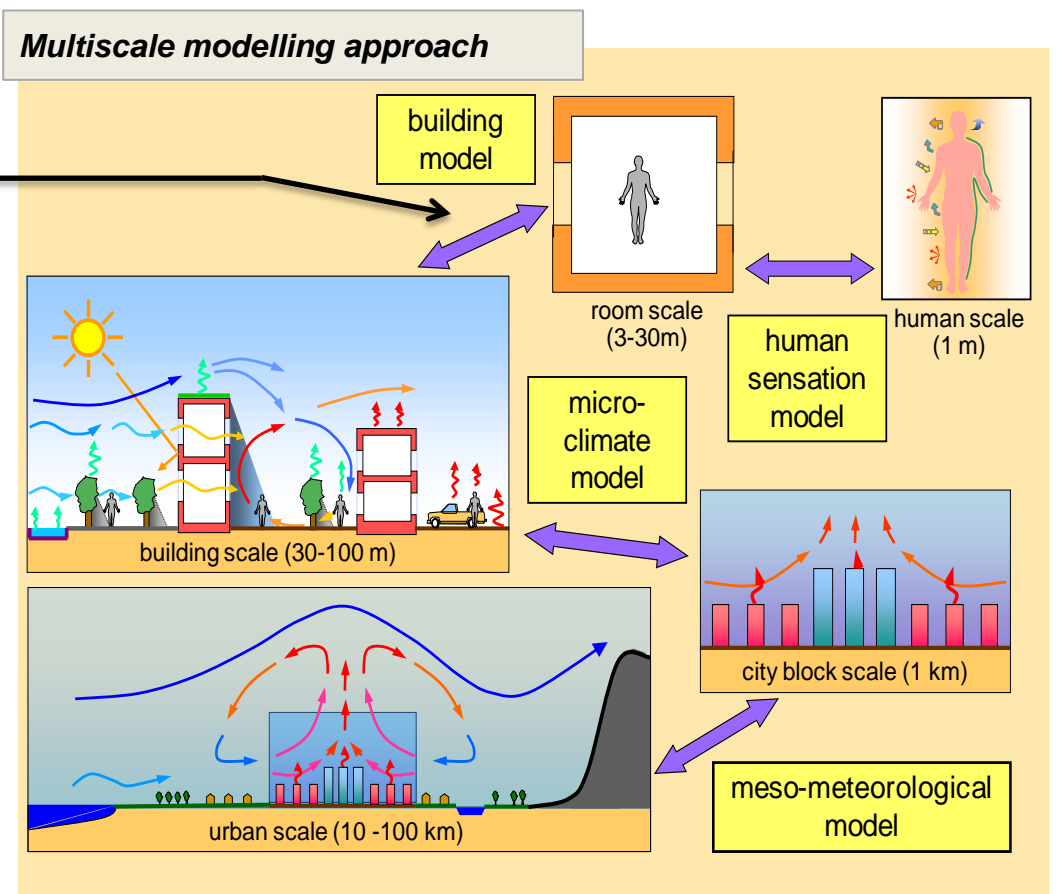
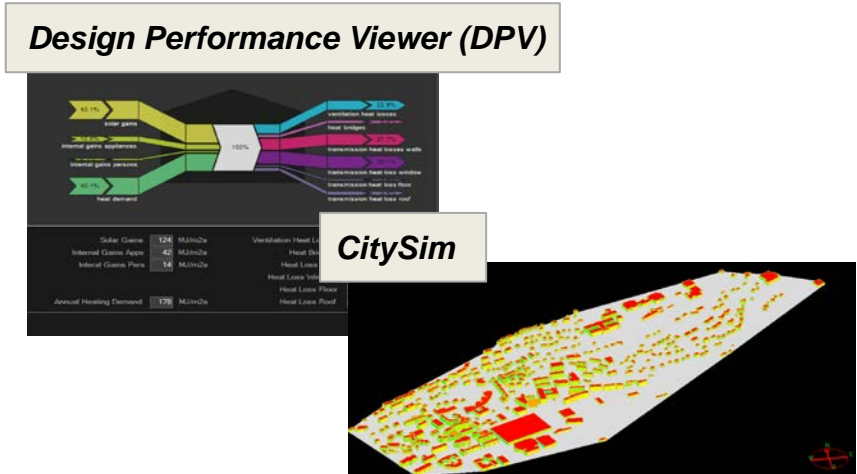
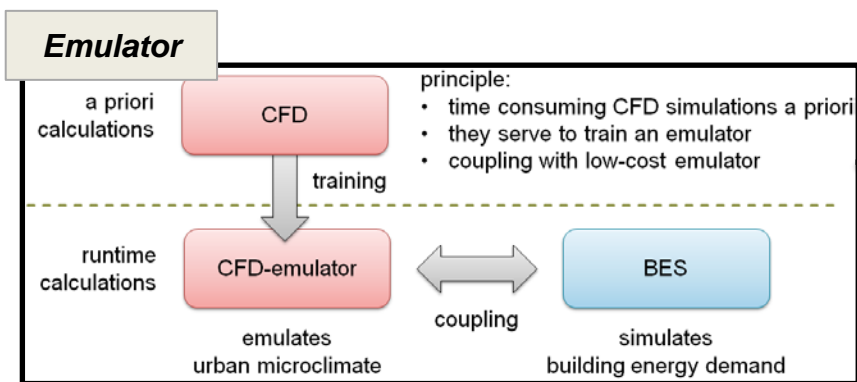
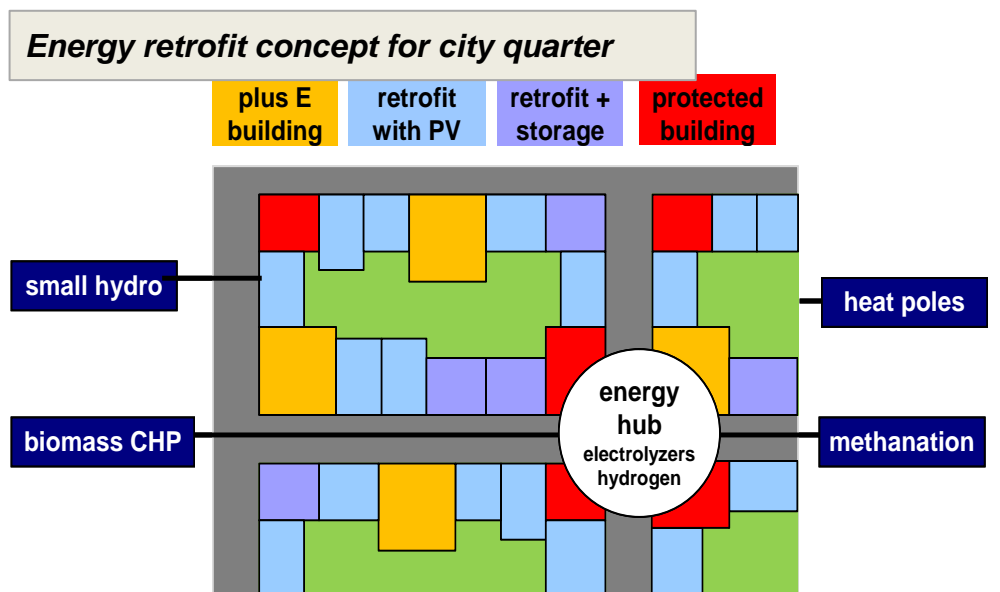
A major part of the final energy consumption in our nowadays society is due to buildings and cities. For the future, we have to find **new concepts** of planning sustainable energy conversion, storage, distribution and management on community or neighbourhood scale, where **buildings become interconnected**, and are harvesting, exchanging and storing energy.

The **objective** is local neighbourhoods to become **energy self-regulating**, minimizing the additional supply from regional or national energy systems. This challenging new concept has the potential to substantially decentralize the energy sector.

In this **project**, we **develop** building and city energy design and analysis **models** and link them in a multiscale approach with the respective **interfaces**.

We **analyse** the possible **design** of existing neighbourhoods towards energy self-regulating communities by a **decentralized energy adaptation concept**, considering also the **urban microclimate** including heat islands and climatic change scenarios.

This holistic approach covers aspects as energy impact, comfort, health, urban safety, and the link to human behaviour and mobility.



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