

# Dual Demand Side Management



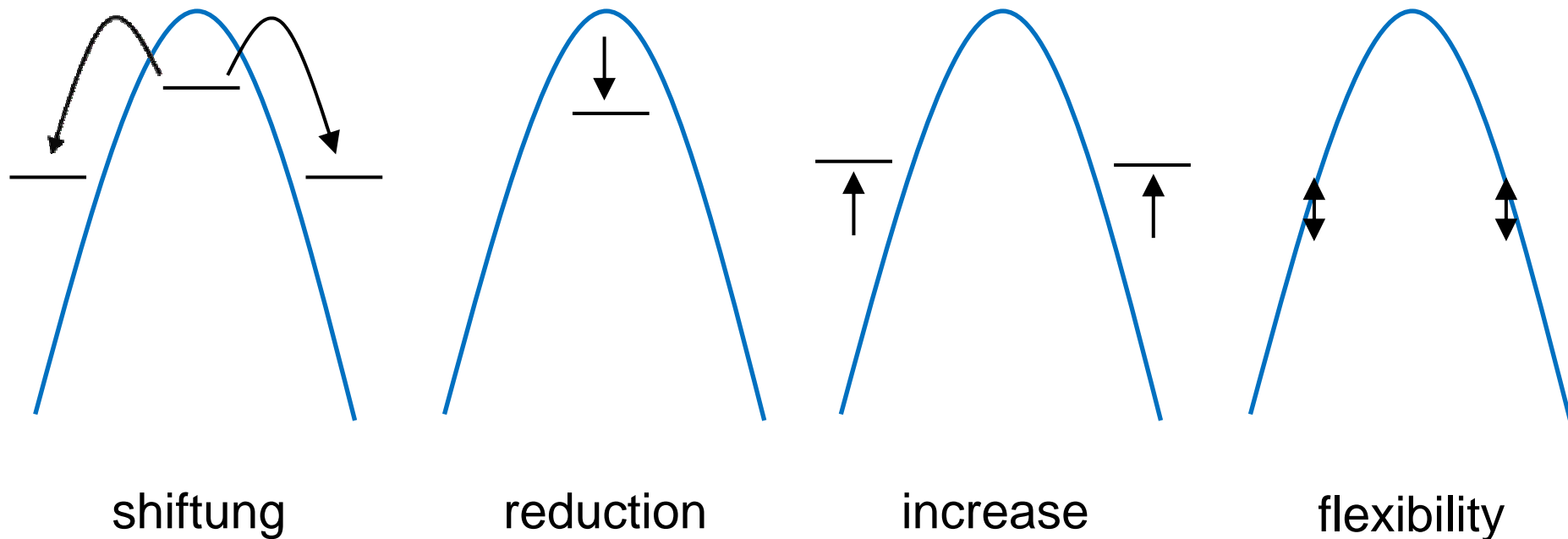
Energy Conference 10/09/2012, Rita Streblow  
EBC | Institute for Energy Efficient Buildings and Indoor Climate

# Demand Side Management



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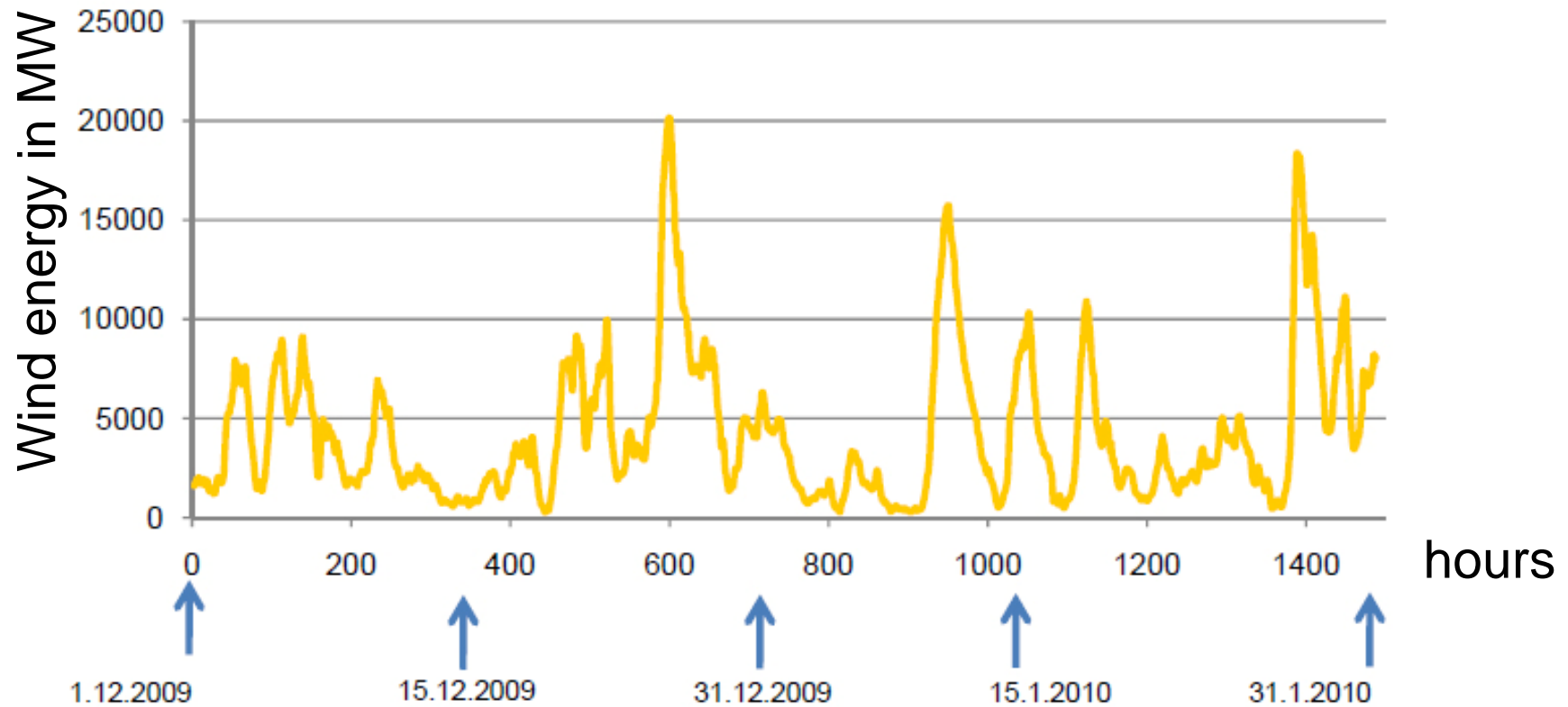
- Load management for the temporal decoupling between generation and demand through



# Wind Power as Volatile Energy



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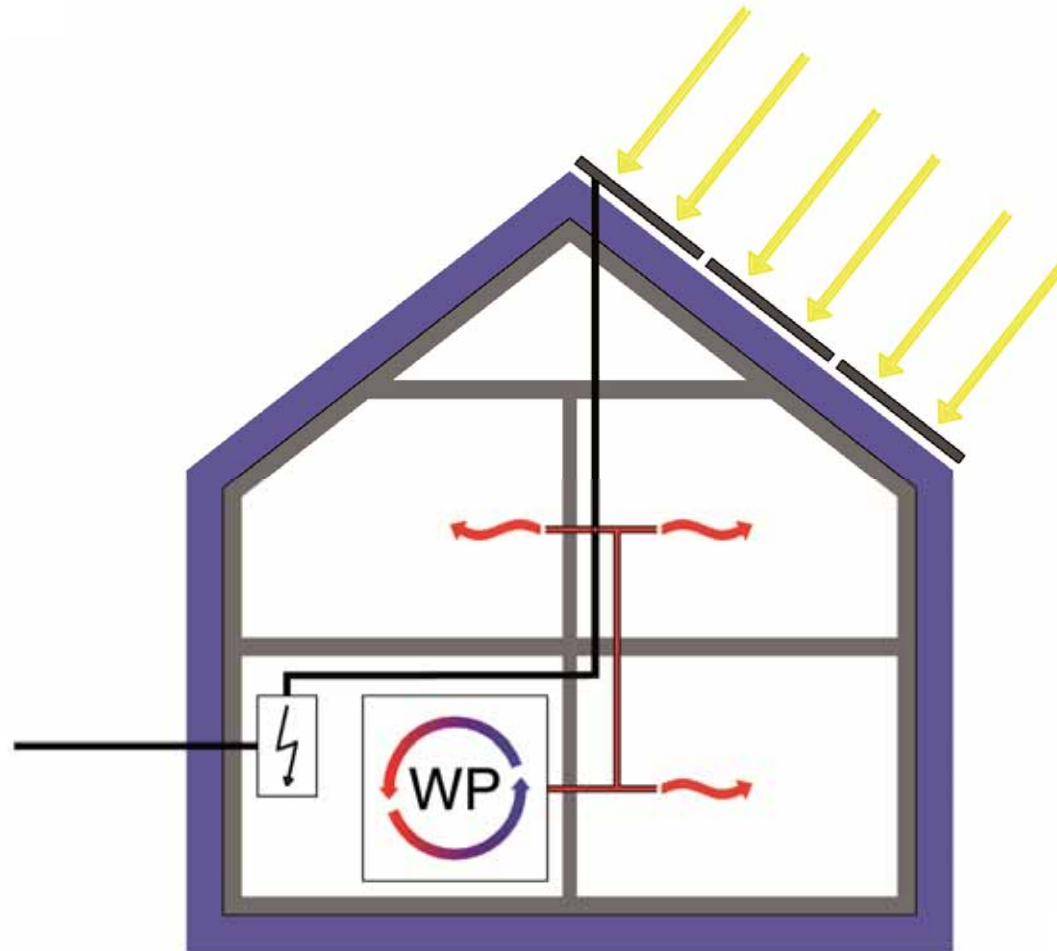
Wind power feed max. 20.000 MW, min. 270 MW

Source: DENA – Vortrag auf dem EVU Gipfel 2010 in Heiligendamm

# Technical Development in Buildings



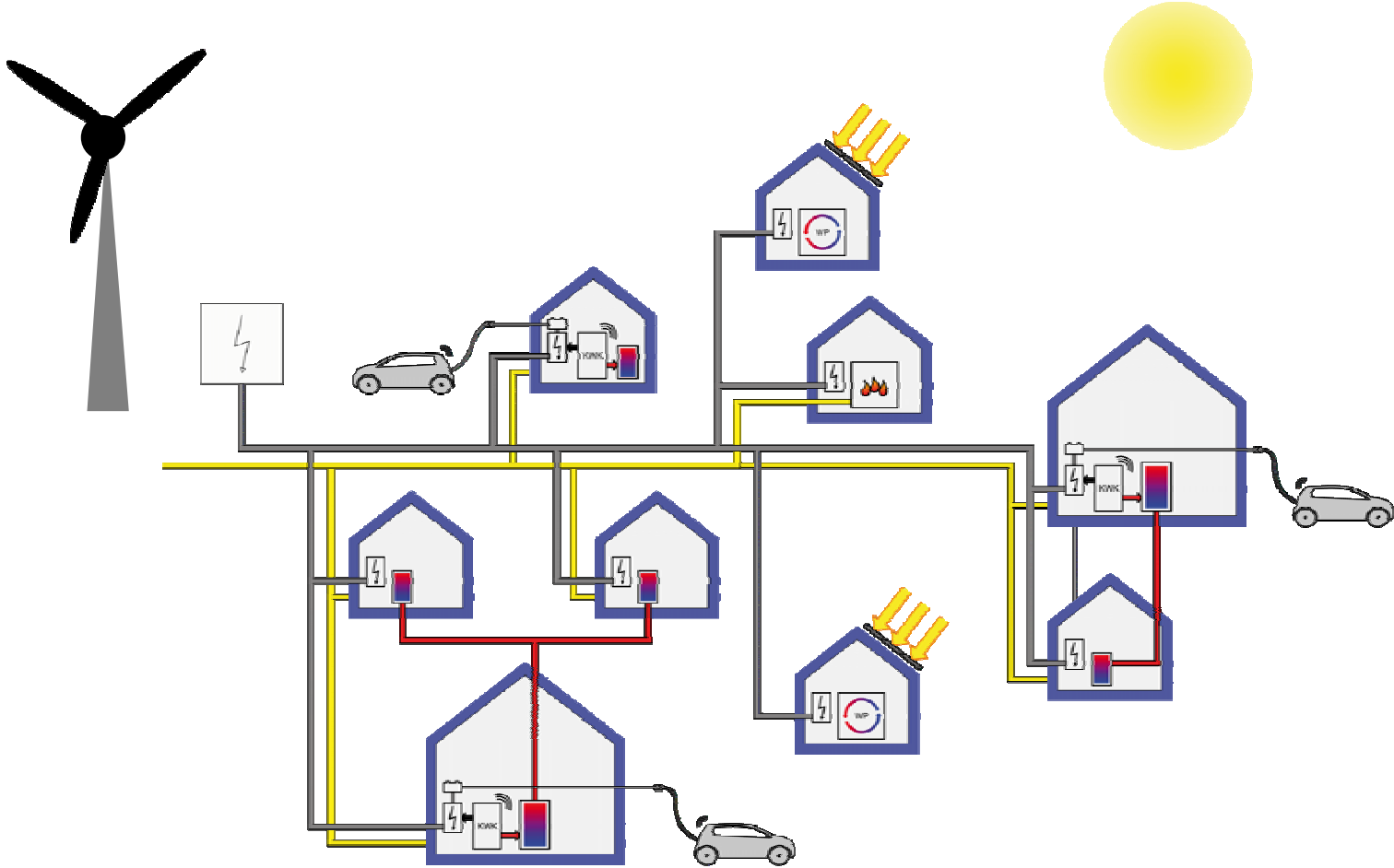
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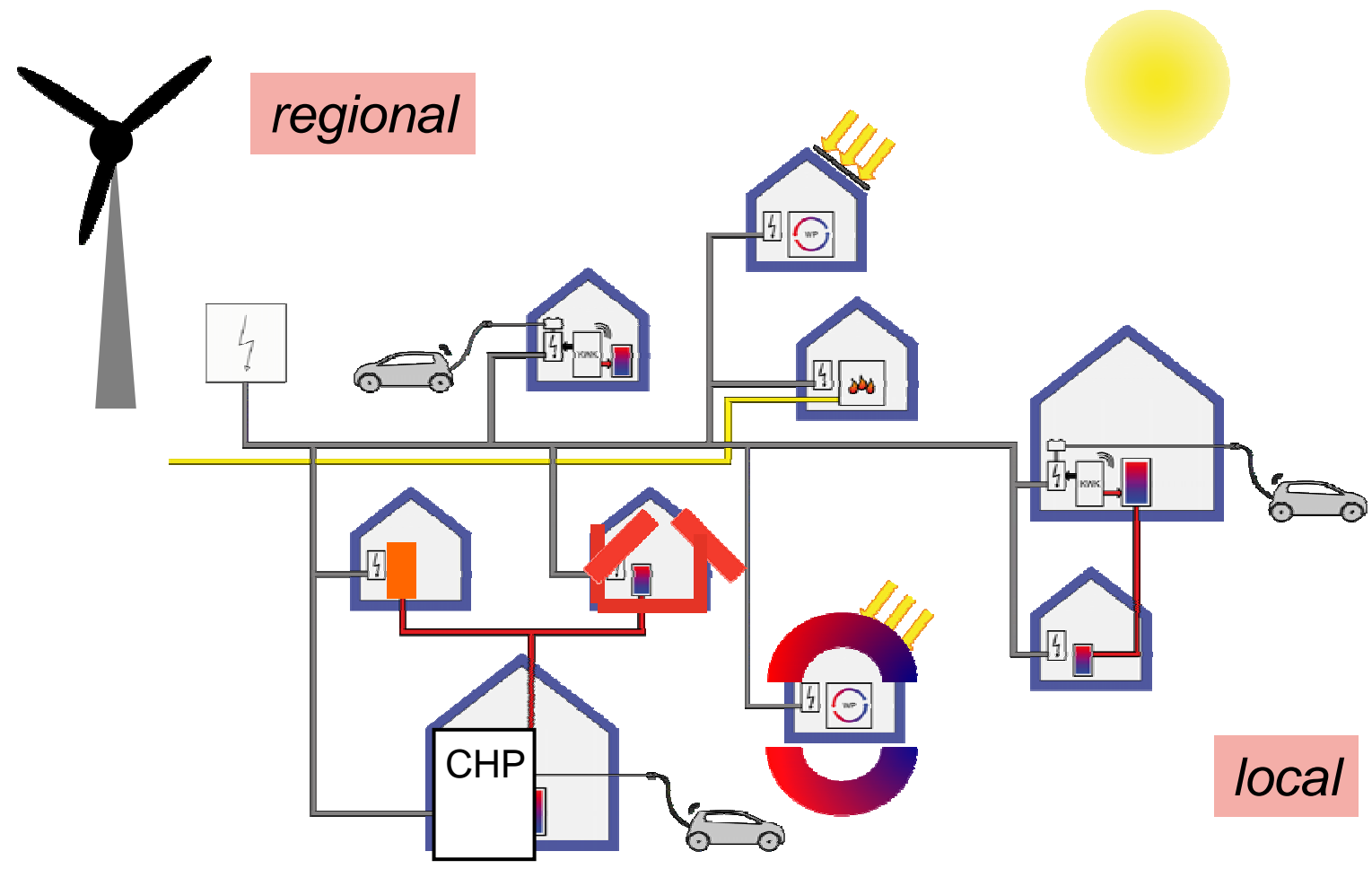
# The City of Tomorrow



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# Dual Demand Side Management



# Innovation City Bottrop



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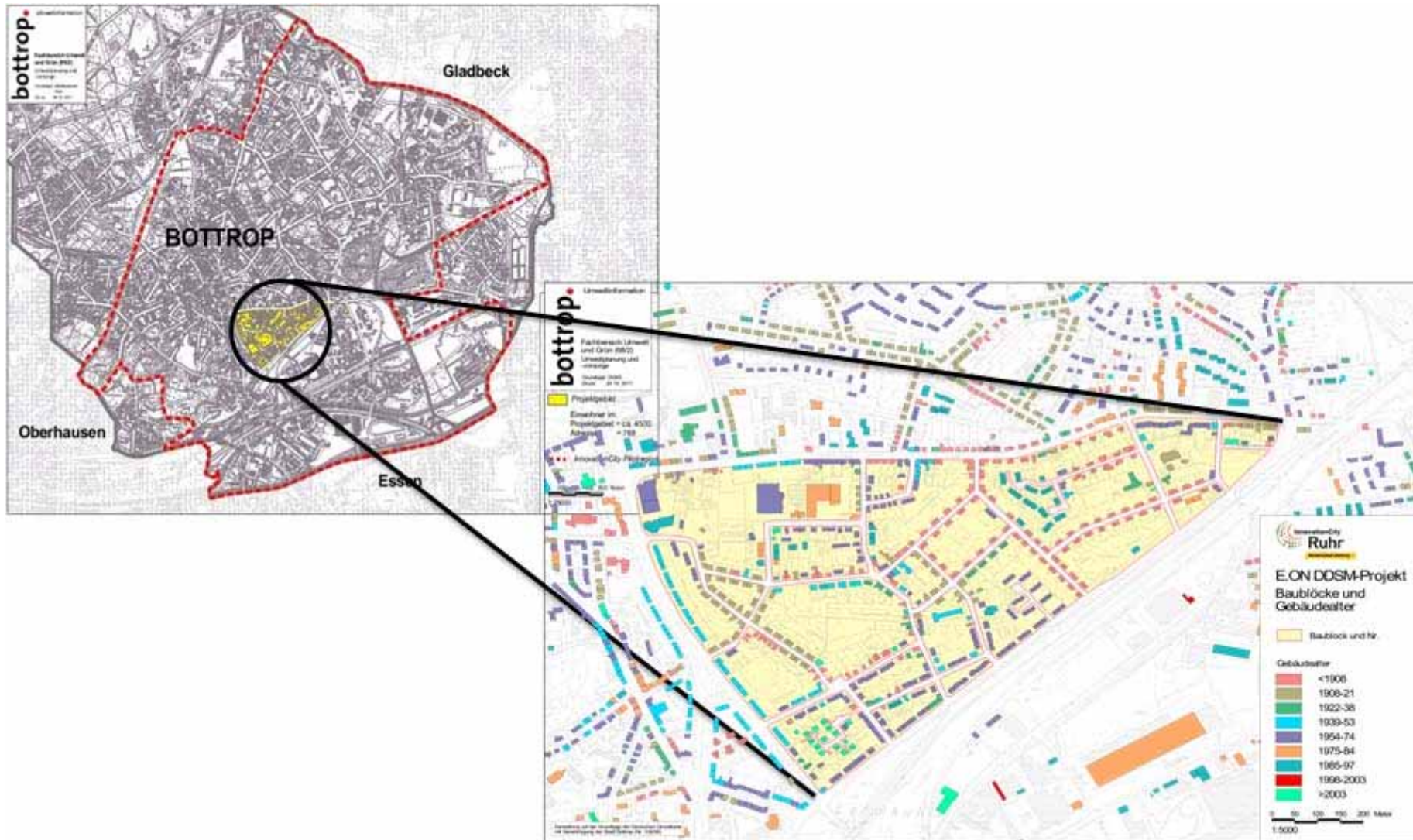
InnovationCity  
**Ruhr**

**Modellstadt Bottrop**

# City Quarter under Investigation



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# City Quarter Batenbrock



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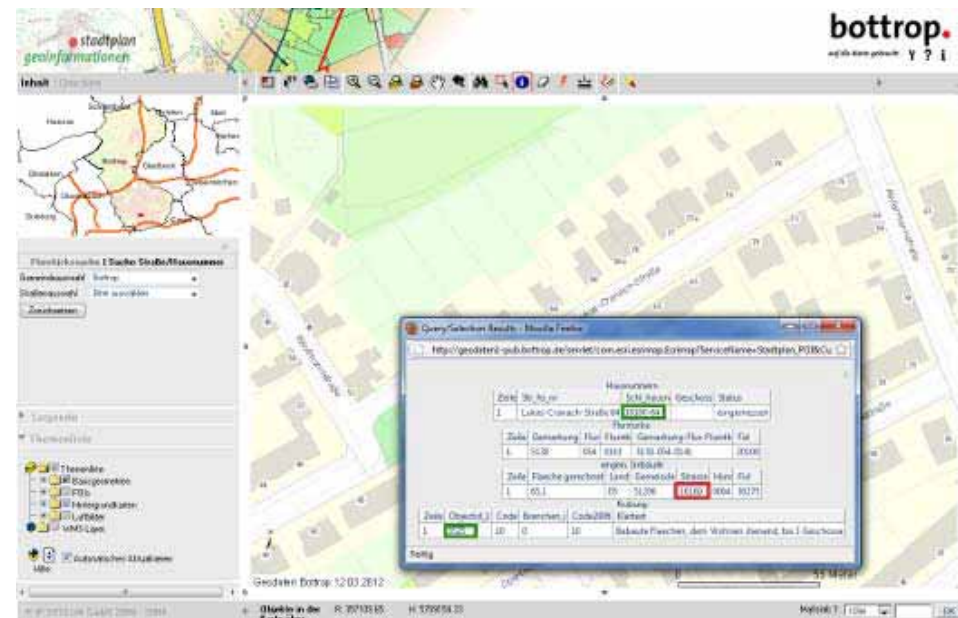


# Data Acquisition



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- Building stock (geo-information system, survey, housing society)
- Data for the energy supply (energy provider, survey, viewing)
- Aggregation and preparation for simulation

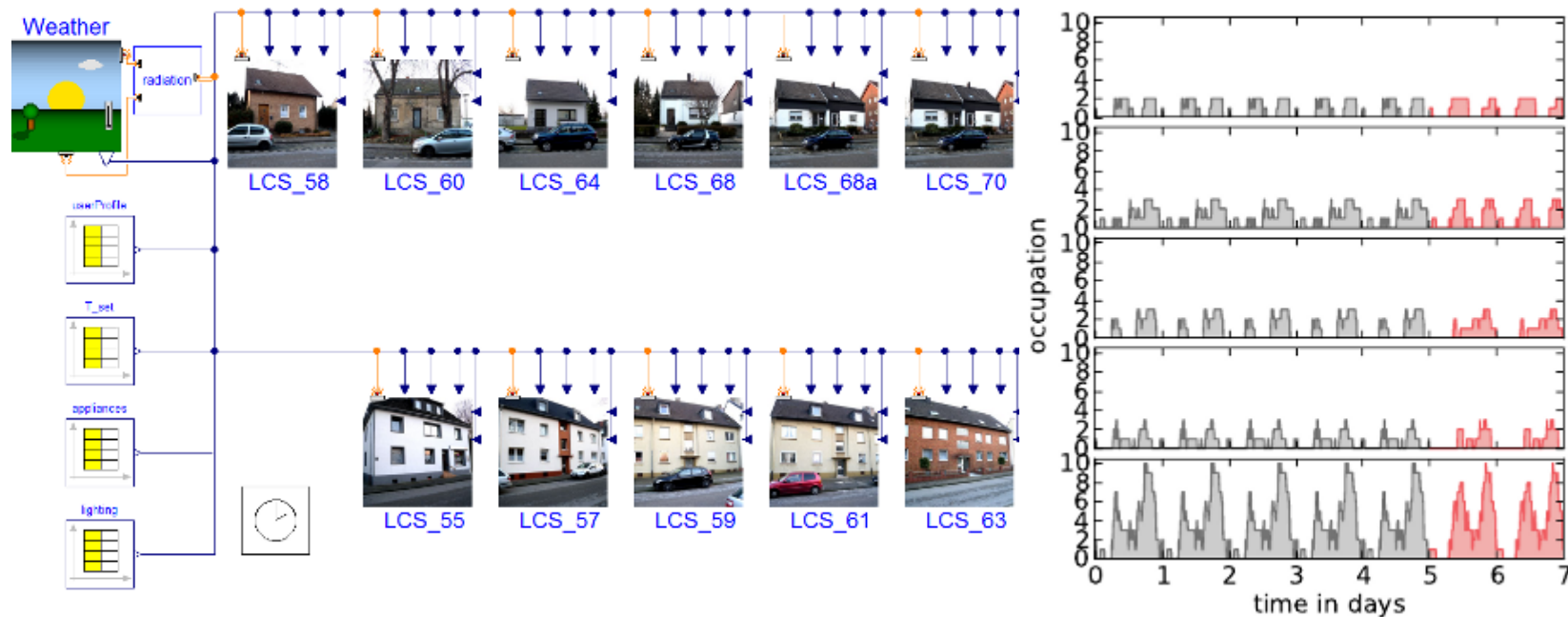


# Building Model



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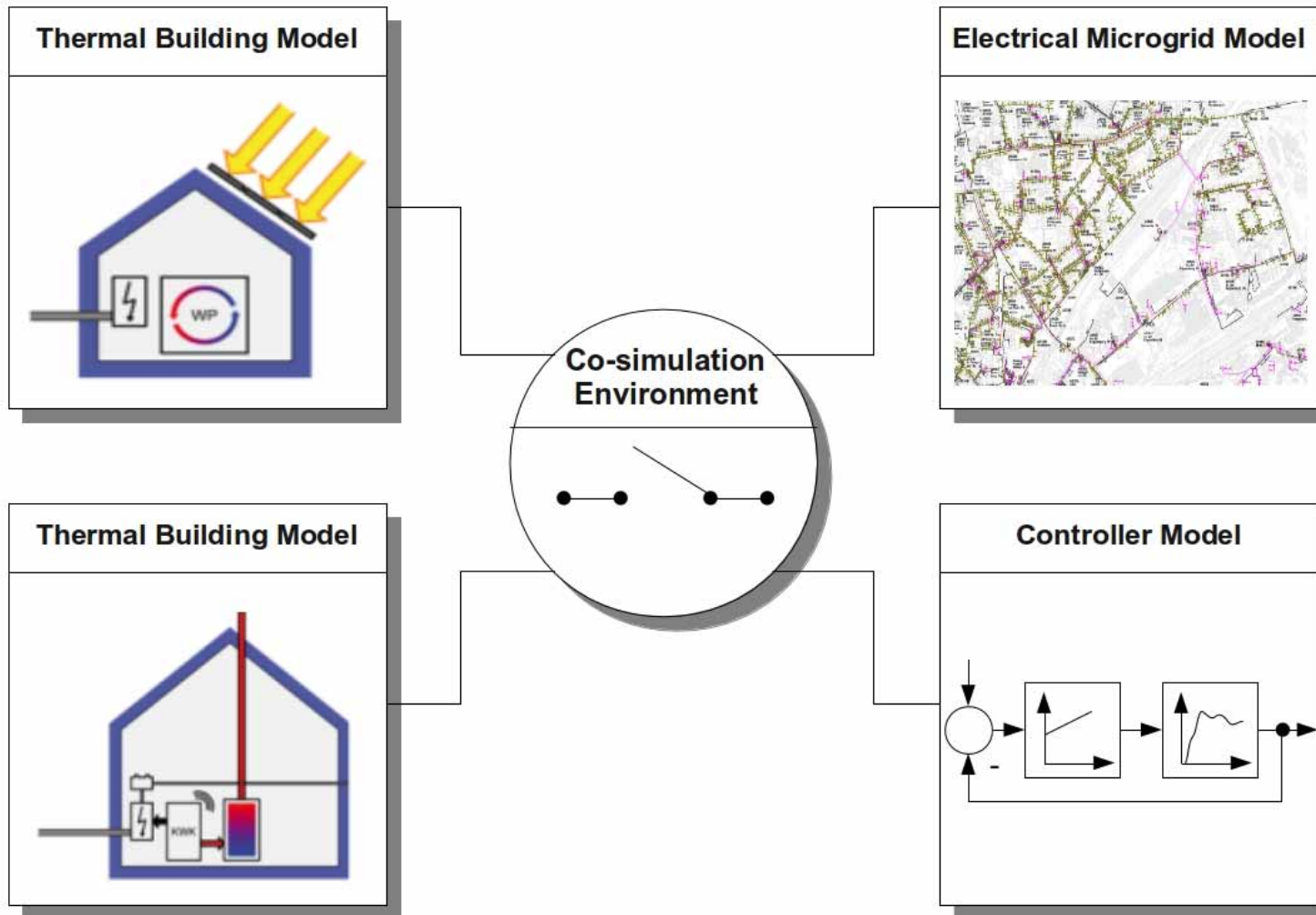
- Simulation of thermal building behavior on city quarter level
- Computational inexpensive resistance-capacity-model
- User behavior included as occupation profiles



# Simulation Environment



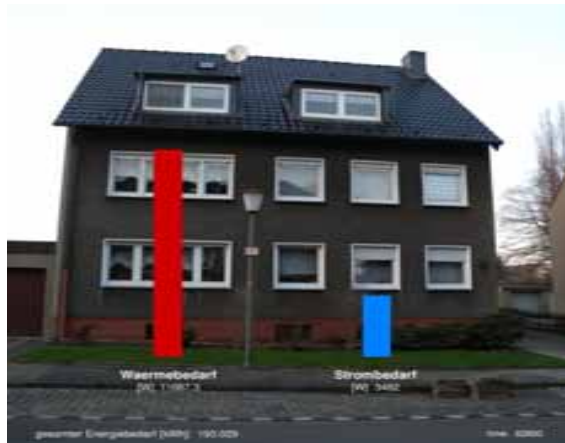
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# Thermal and Electrical Consumption

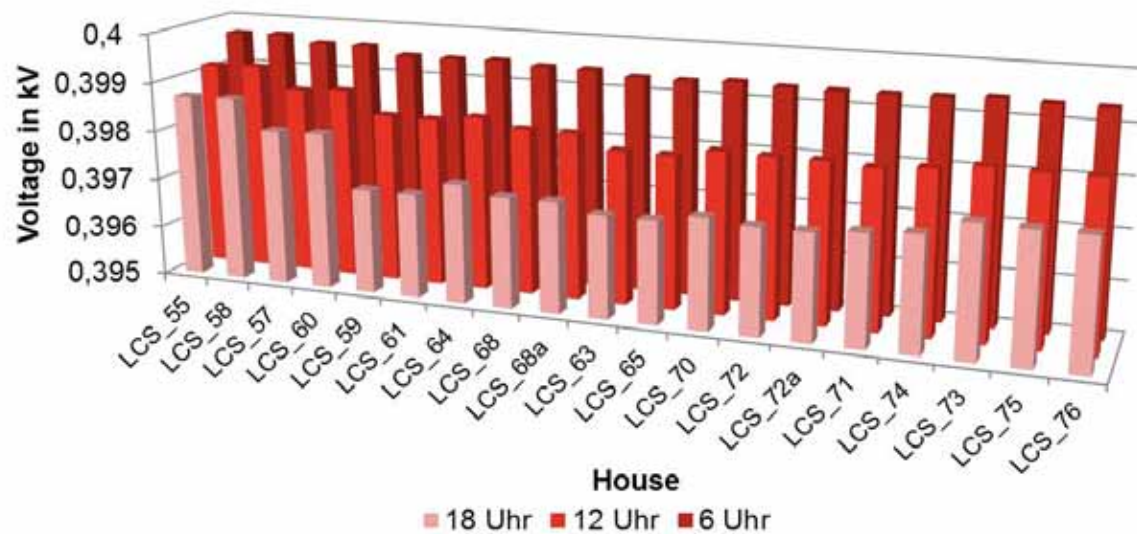


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Building energy consumption

## Voltage profil of a street



- Development of a simulation environment for the examination of a whole city quarter with its whole energy supply structure
- The Dual Demand Side Management will allow an intelligent combination and control between all supply grids and decentralised generators and storages
  - Potential of a parallel control of thermal and electrical energy to stabilize the grid
  - Analysis of the network load through local installations in the city quarter
  - Influence of volatile renewable energy sources on the local system

Thank You for Your attention!



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