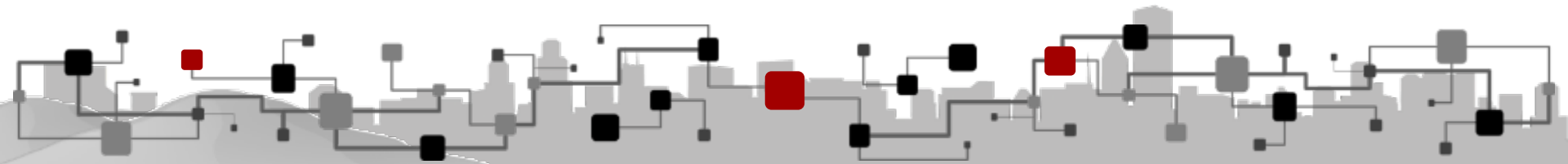


Decarbonizing the Energy System

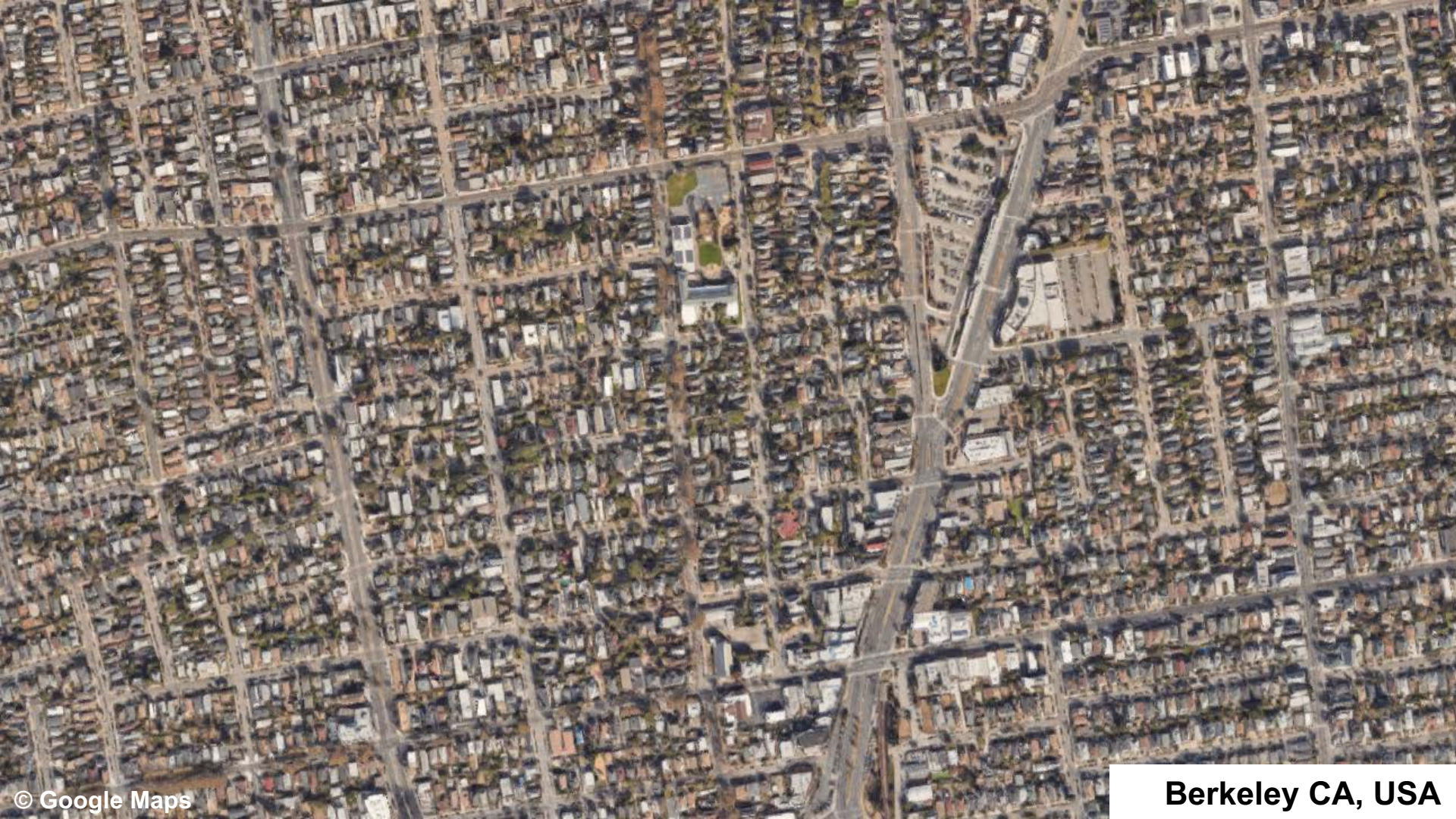
– How knowledge transfer leads to more effective projects

Prof. Matthias Sulzer
Empa, Urban Energy Systems Laboratory
Head SCCER-FEEBD

Dr. Michael Wetter
LBNL, Building Technology and
Urban Systems Division



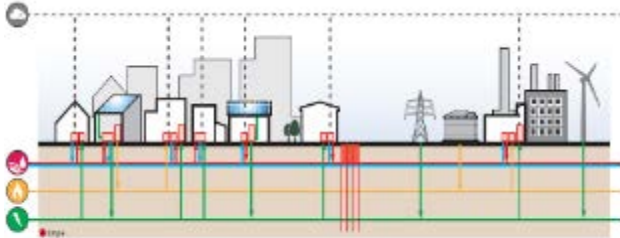








Distributed Energy System (DES)



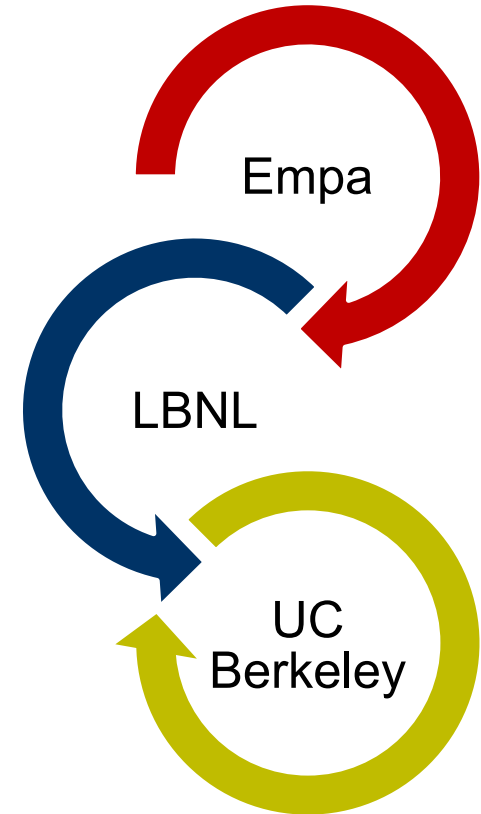
Energy Hub Simulation
& Optimization Platform



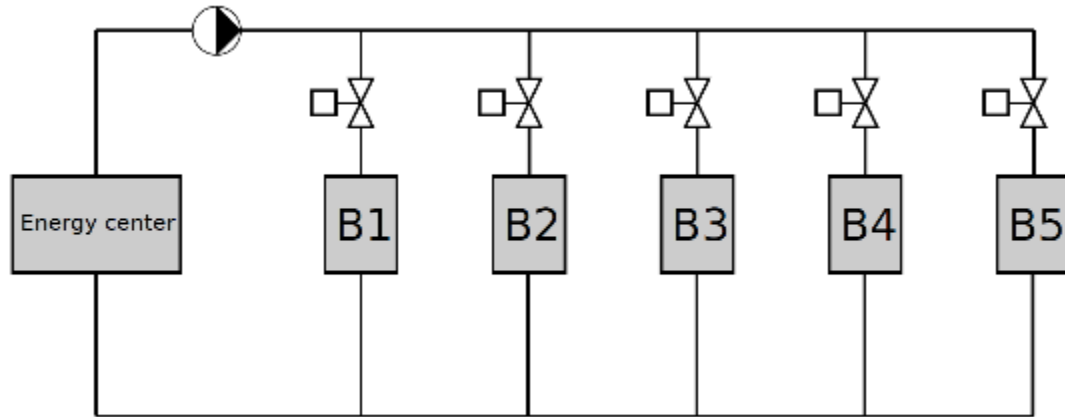
URBANopt Simulation
& Optimization Platform



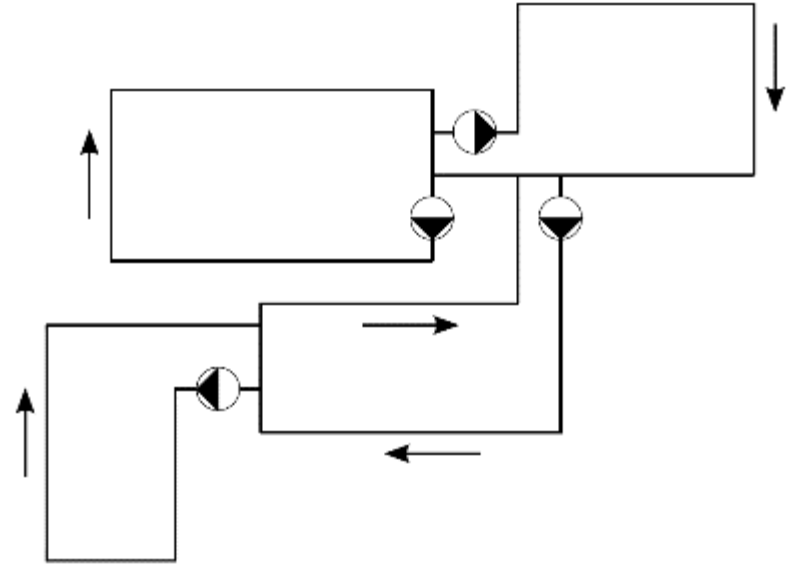
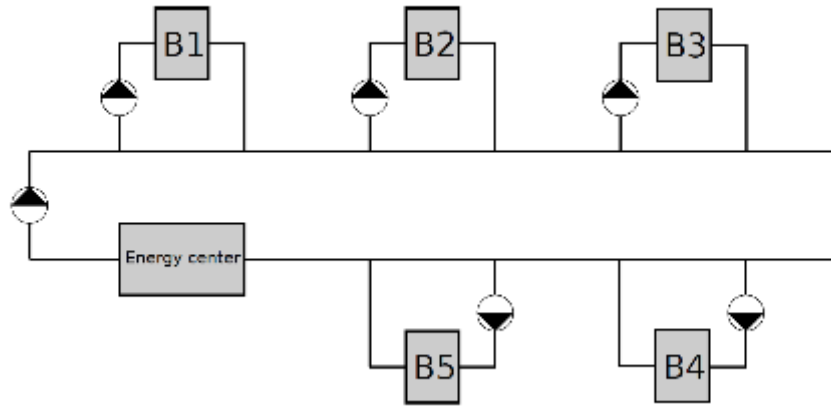
EcoBlock Concept

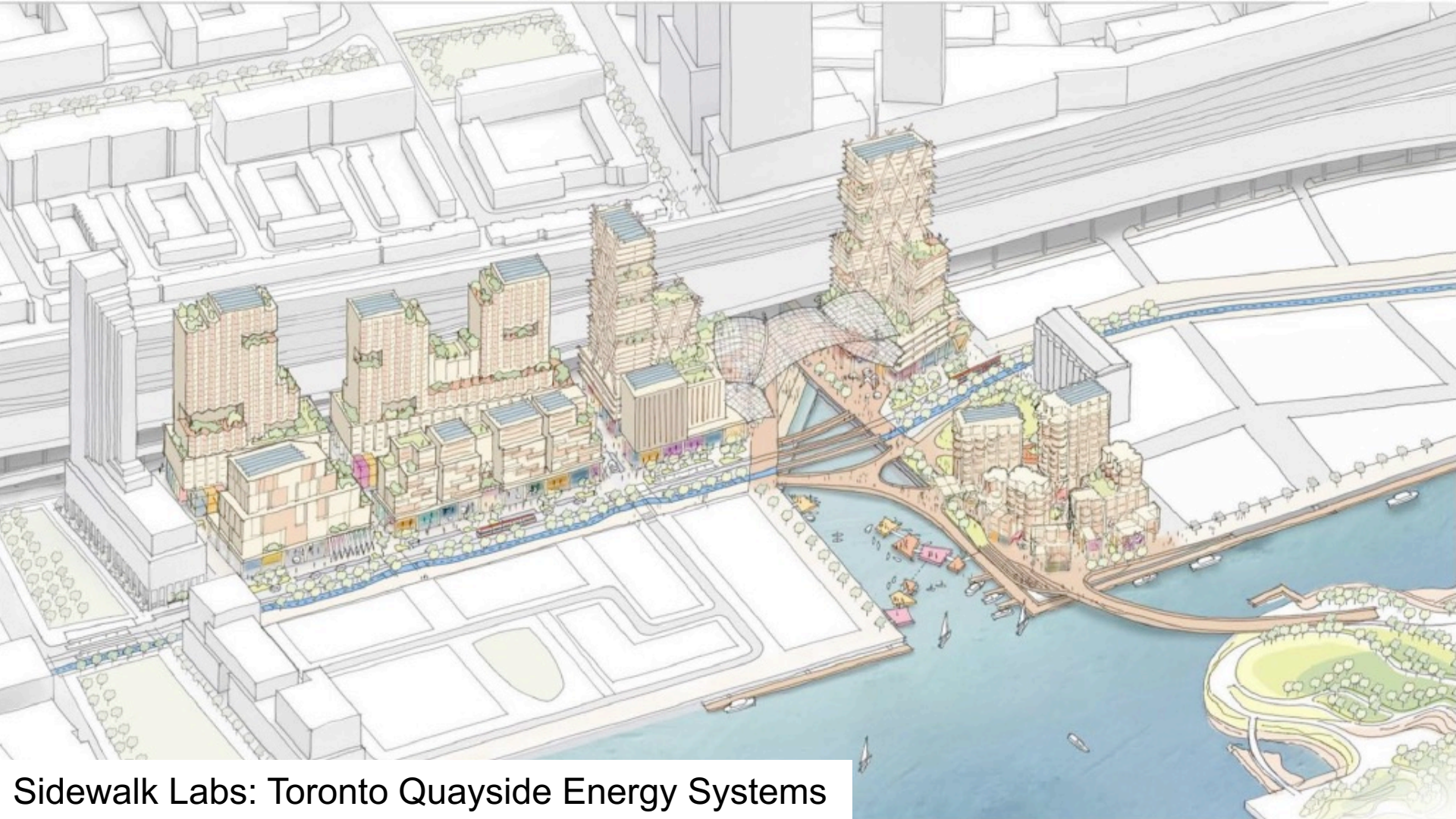


4th Generation of District Heating



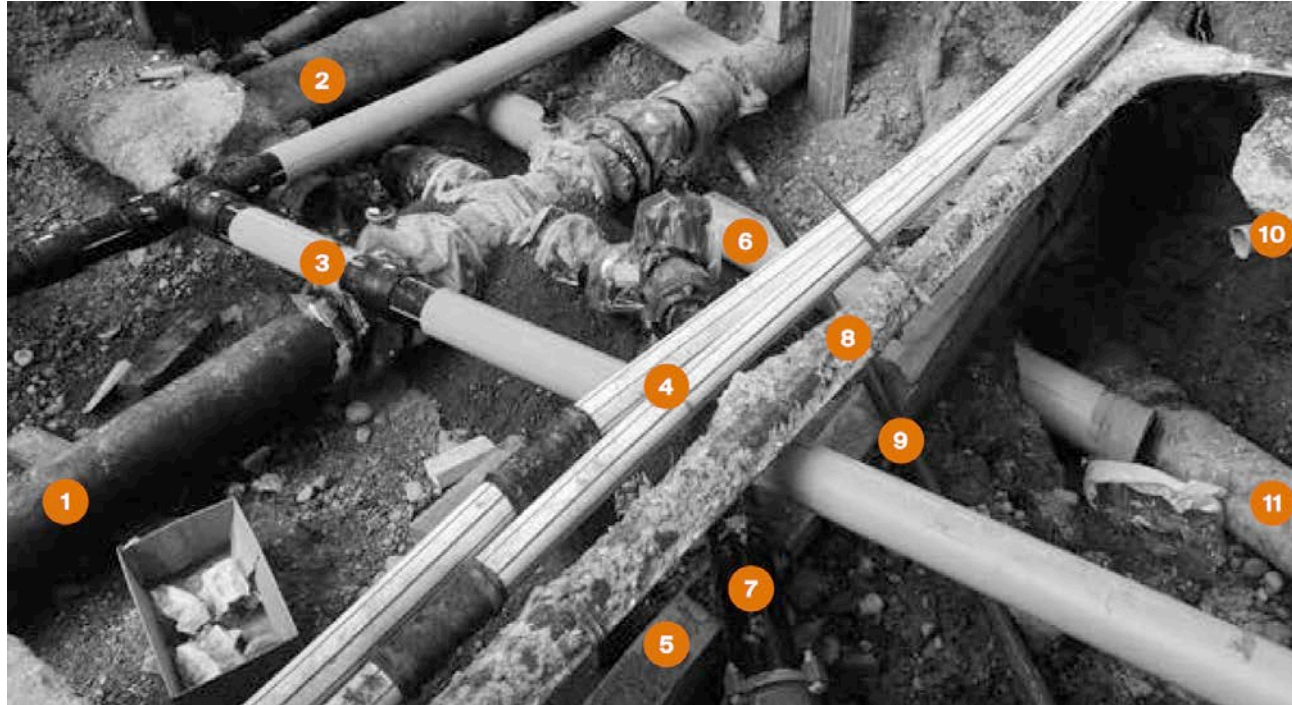
5th Generation of District Heating & Cooling





Sidewalk Labs: Toronto Quayside Energy Systems

Boundary Conditions



Infrastructure node in Zurich:

1. Water supply Ø300 mm
2. Sewer
3. Gas line Ø160 mm
4. Power line Ø100 mm
5. Concrete duct for power cable
6. Gas line Ø280 mm
7. Water supply Ø200 mm
8. Telecommunication cables
9. Fresh water Ø63 mm
10. Road drainage
11. Old gas supply line in operation

Photo: Locher Engineers

