Digitalisierung – Teil der Lösung

Webinar „Energiesystem der Zukunft“, 17 June 2020

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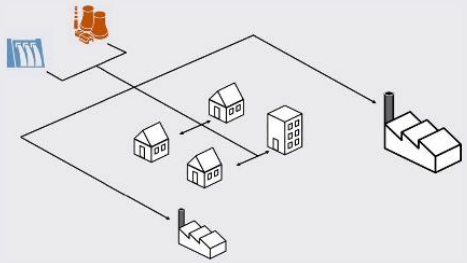
Motivation

Empa
Materials Science and Technology

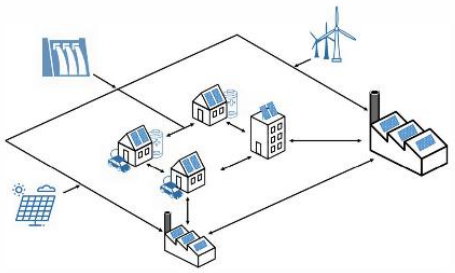
STATUS QUO

CENTRAL GENERATION



2050

DECENTRAL GENERATION



STATUS QUO

DOMINATING FOSSILE ENERGY CARRIERS

2050

DOMINATING ELECTRICITY AS ENERGY CARRIER

Digital Maturity Assessment

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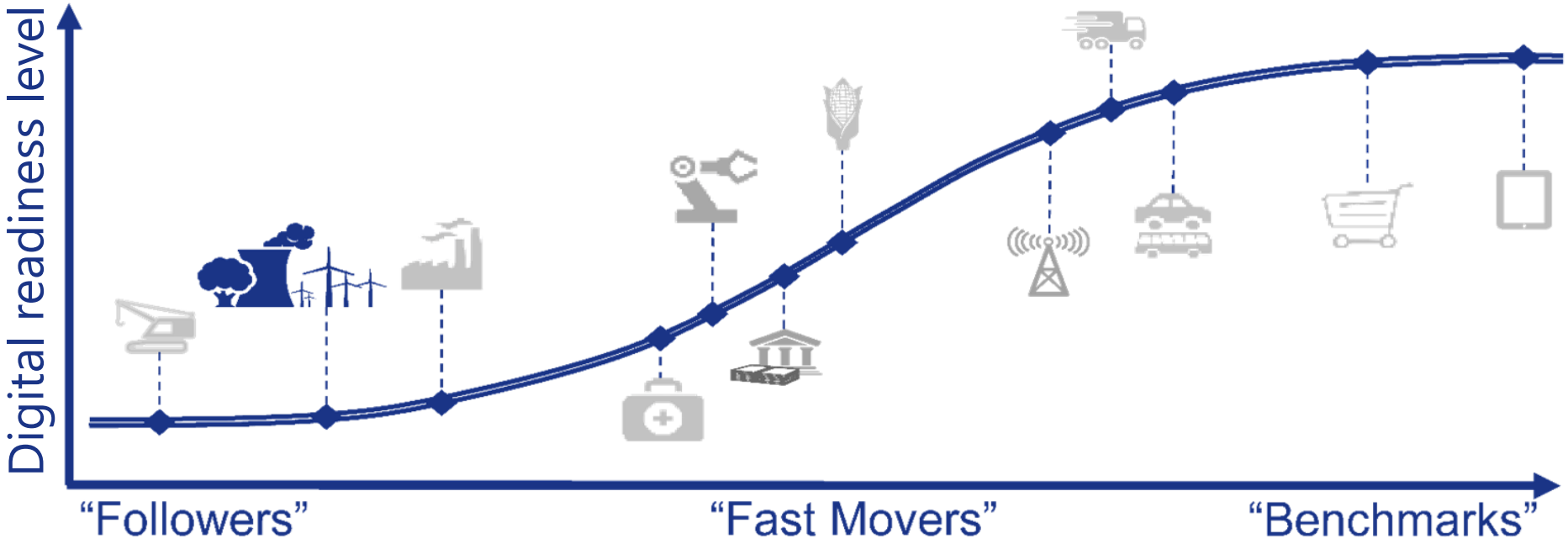

Source: Digital Maturity Assessment; TM Forum 2018

ehub demonstrator at Empa

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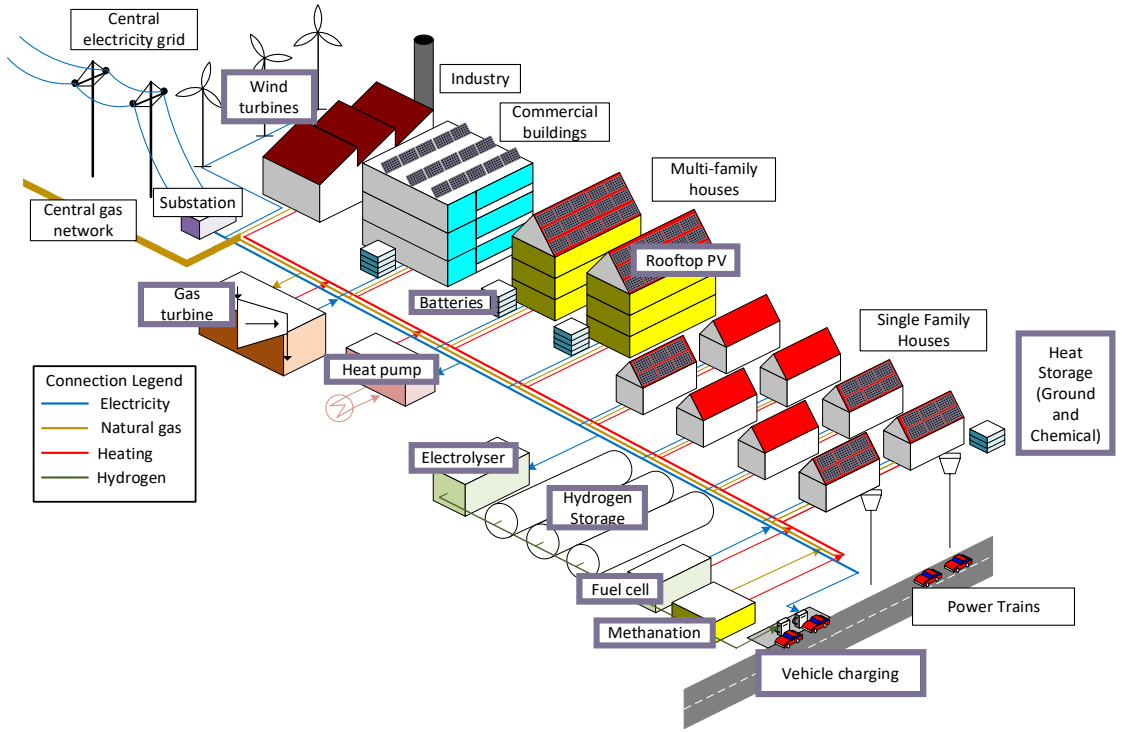

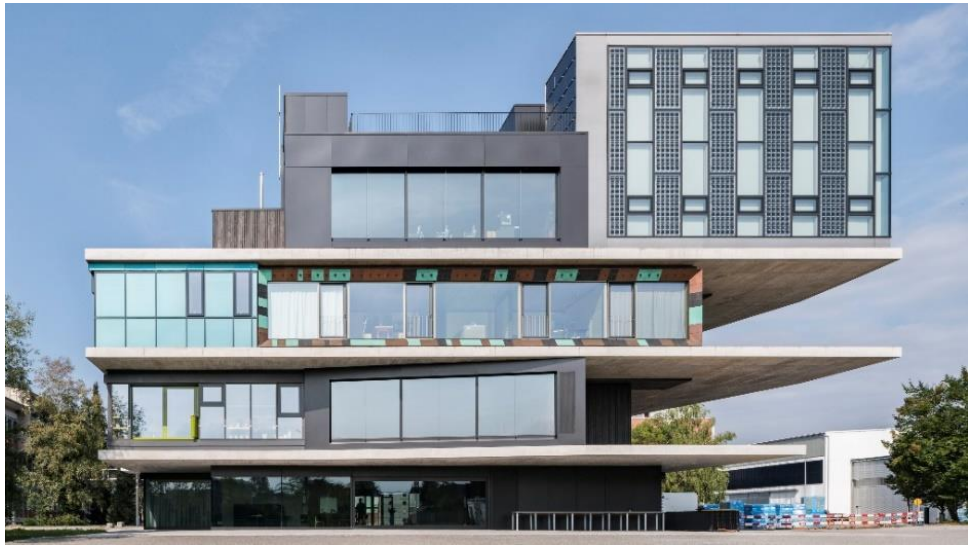

6 Heat pumps
3 Thermal buffers
1 Ice storage unit
⋮
2 Batteries
7 PV and thermal collectors
3 EV charging station
⋮
4 Thermal networks
4 Electrical networks

500+ Actors
1100+ Sensors
8000+ Datapoints

multi energy system

Data Predictive Control - heating and cooling with AI

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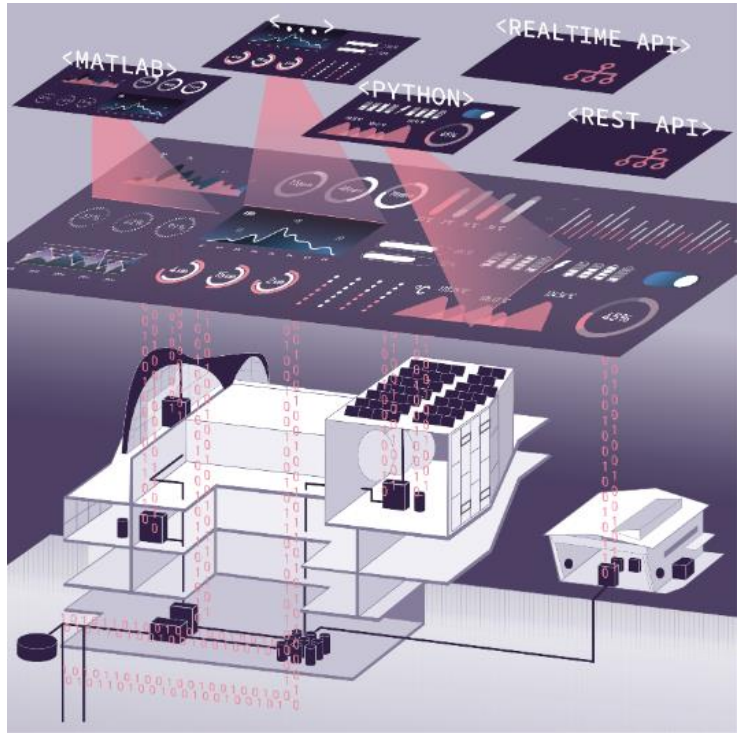

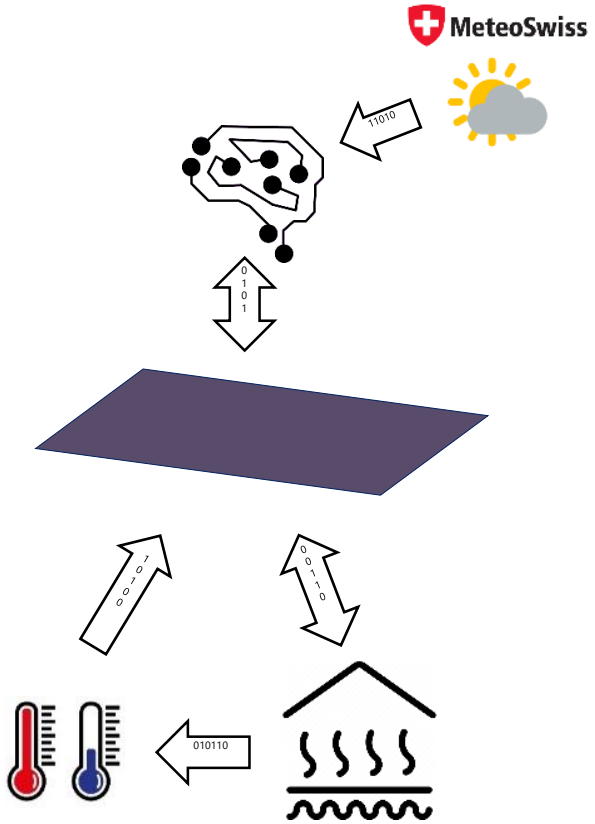

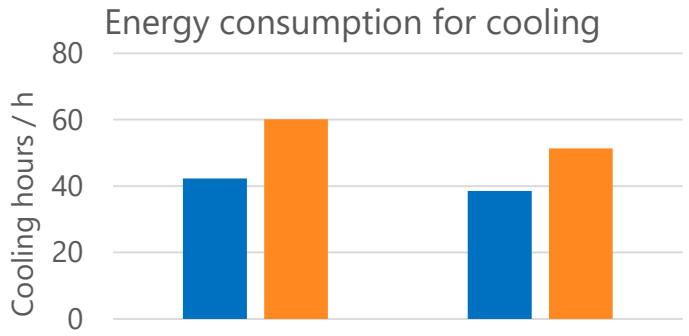

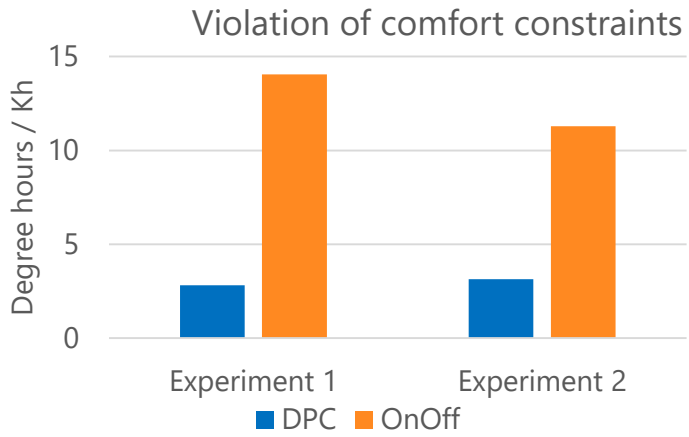

Data Predictive Control - heating and cooling with AI

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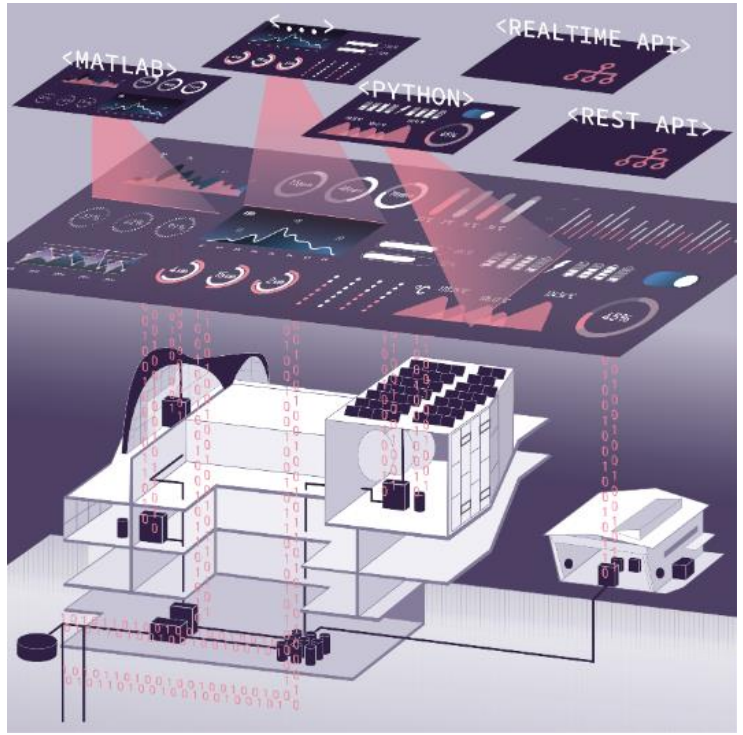
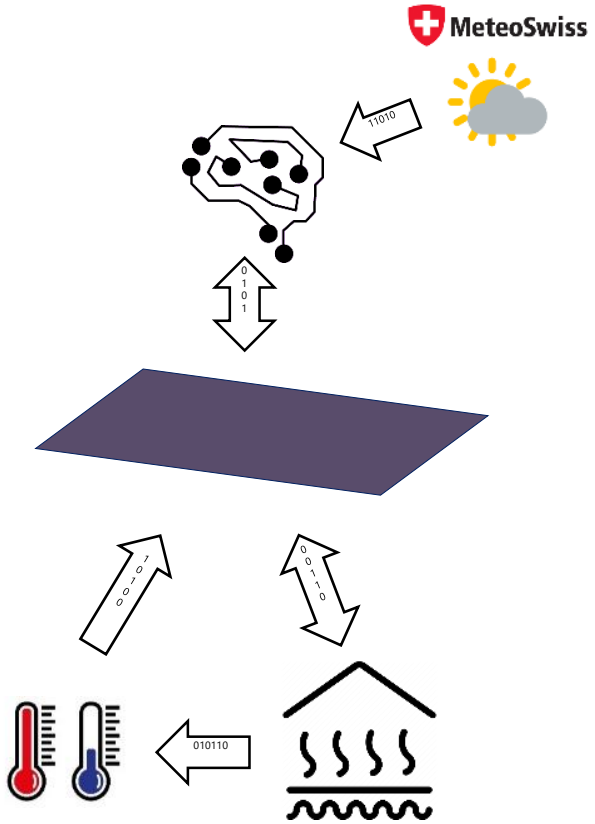
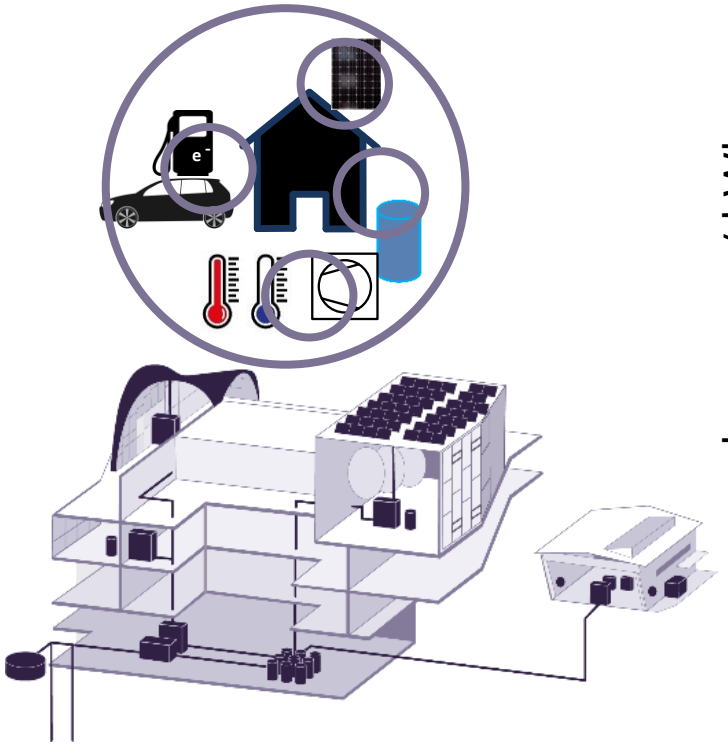


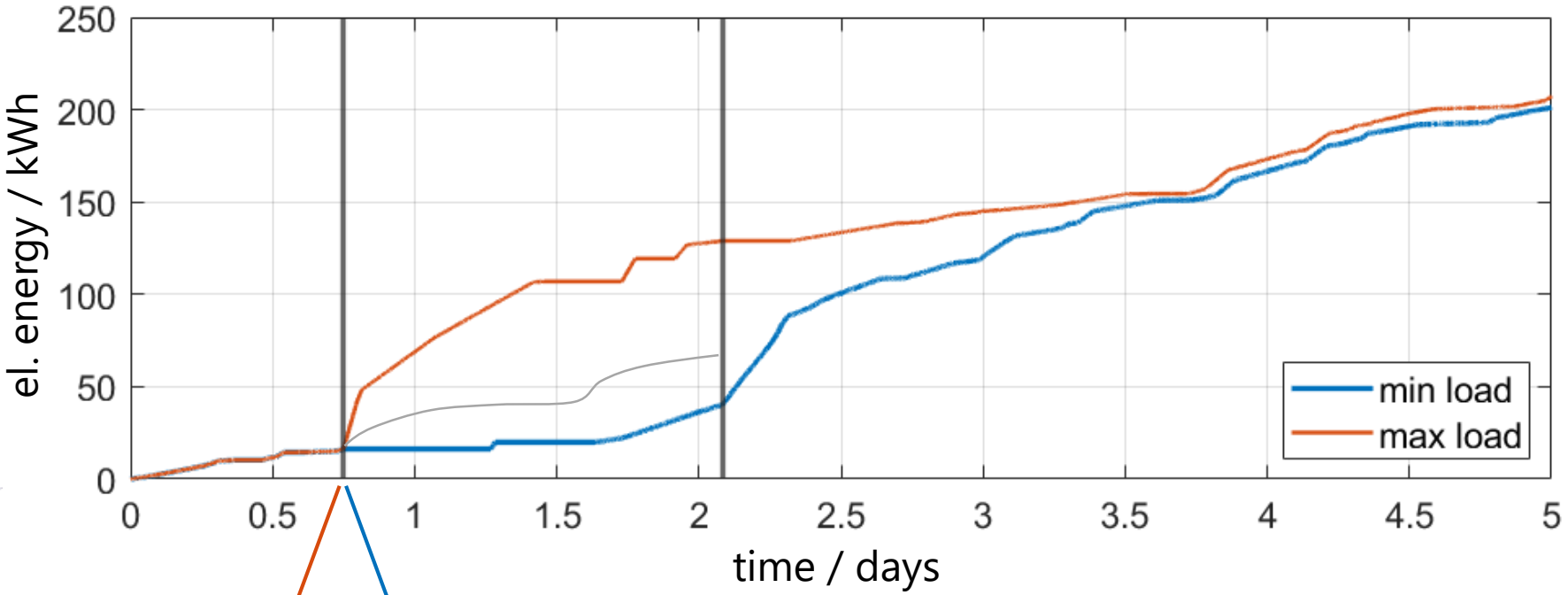


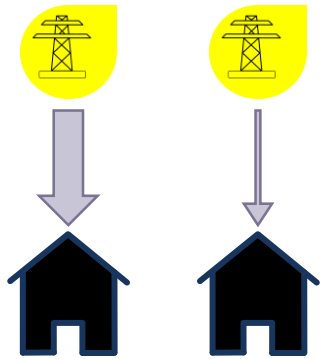
25% of heating and cooling energy can be saved with a predictive controller.

It is possible to achieve both objectives at the same time:
reducing energy cost
increasing comfort

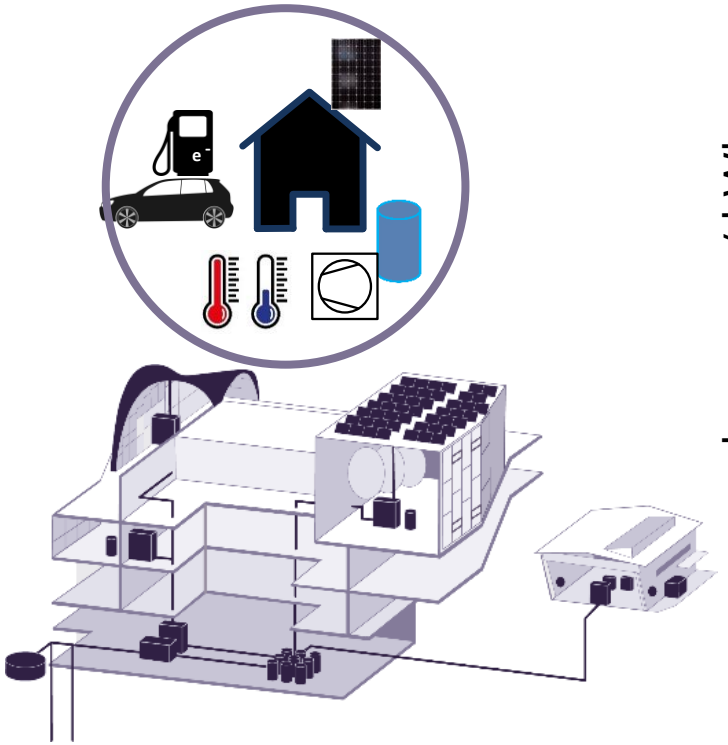
Enabling building flexibility

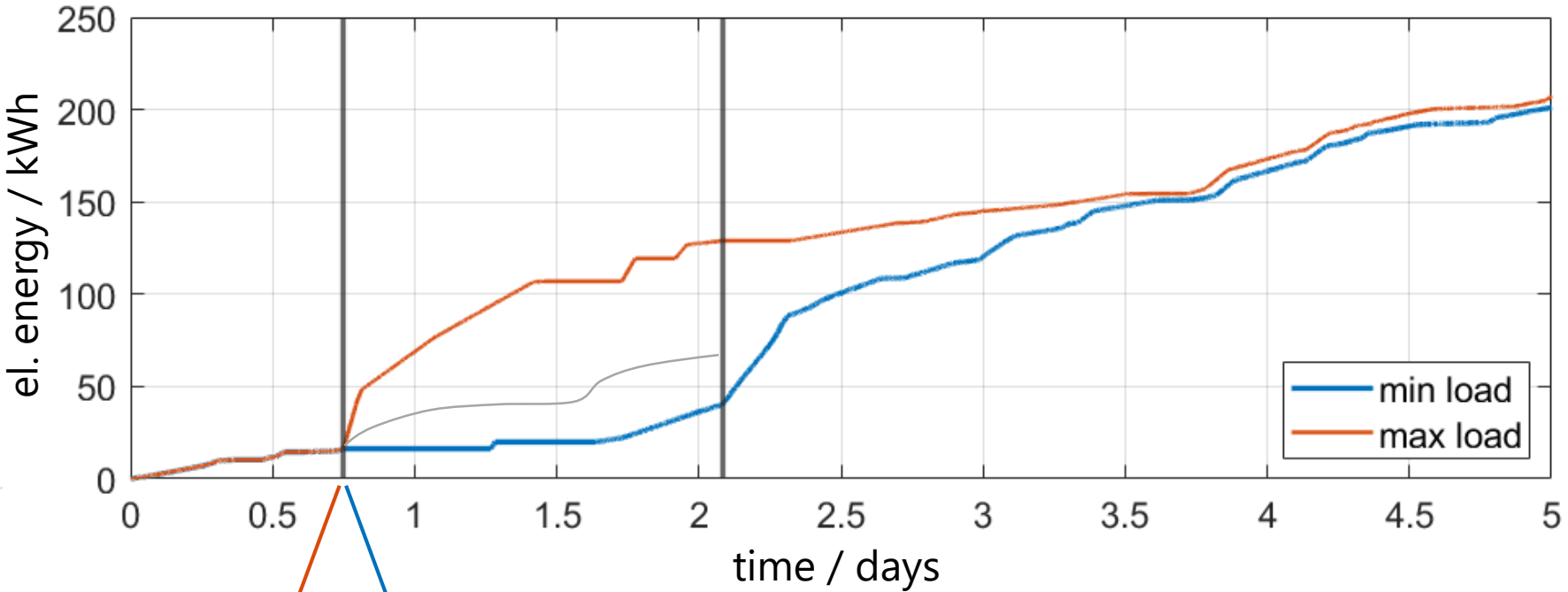


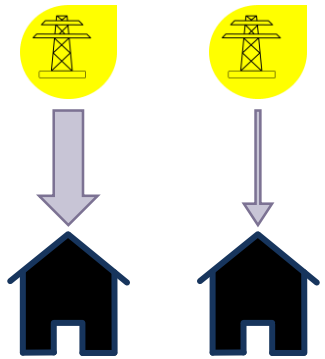




Enabling building flexibility







Thank you for your attention!

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