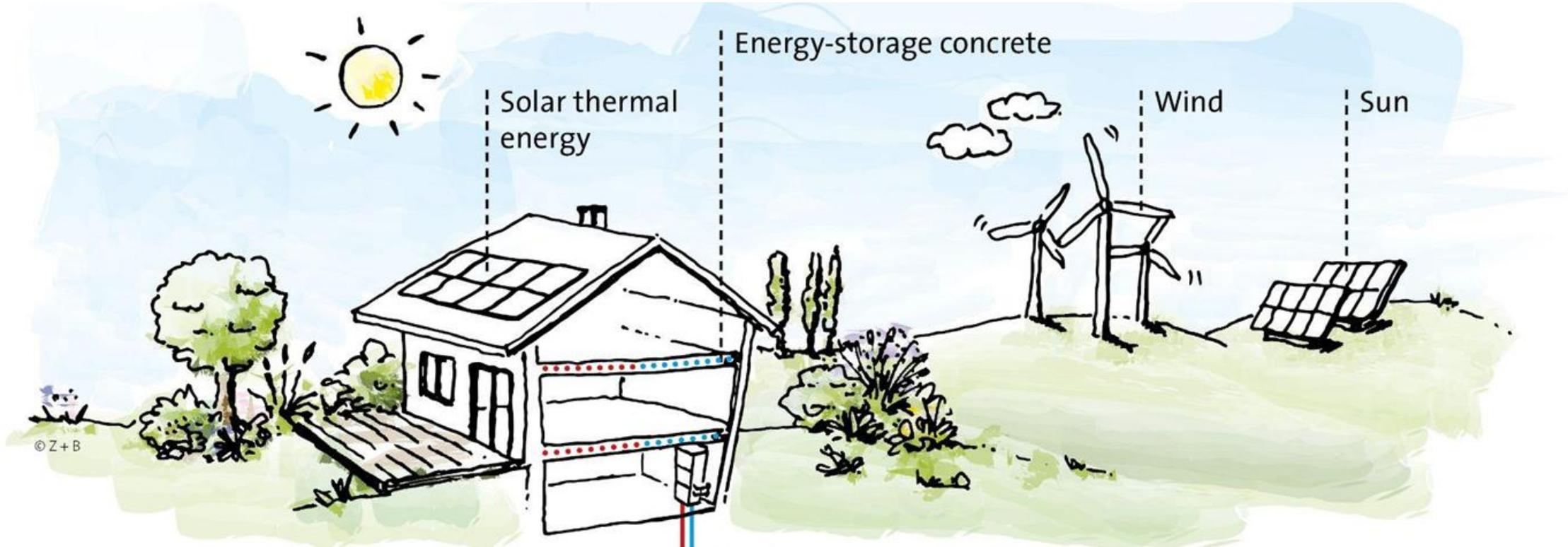
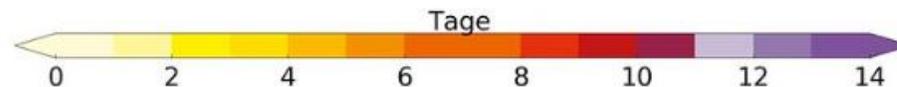
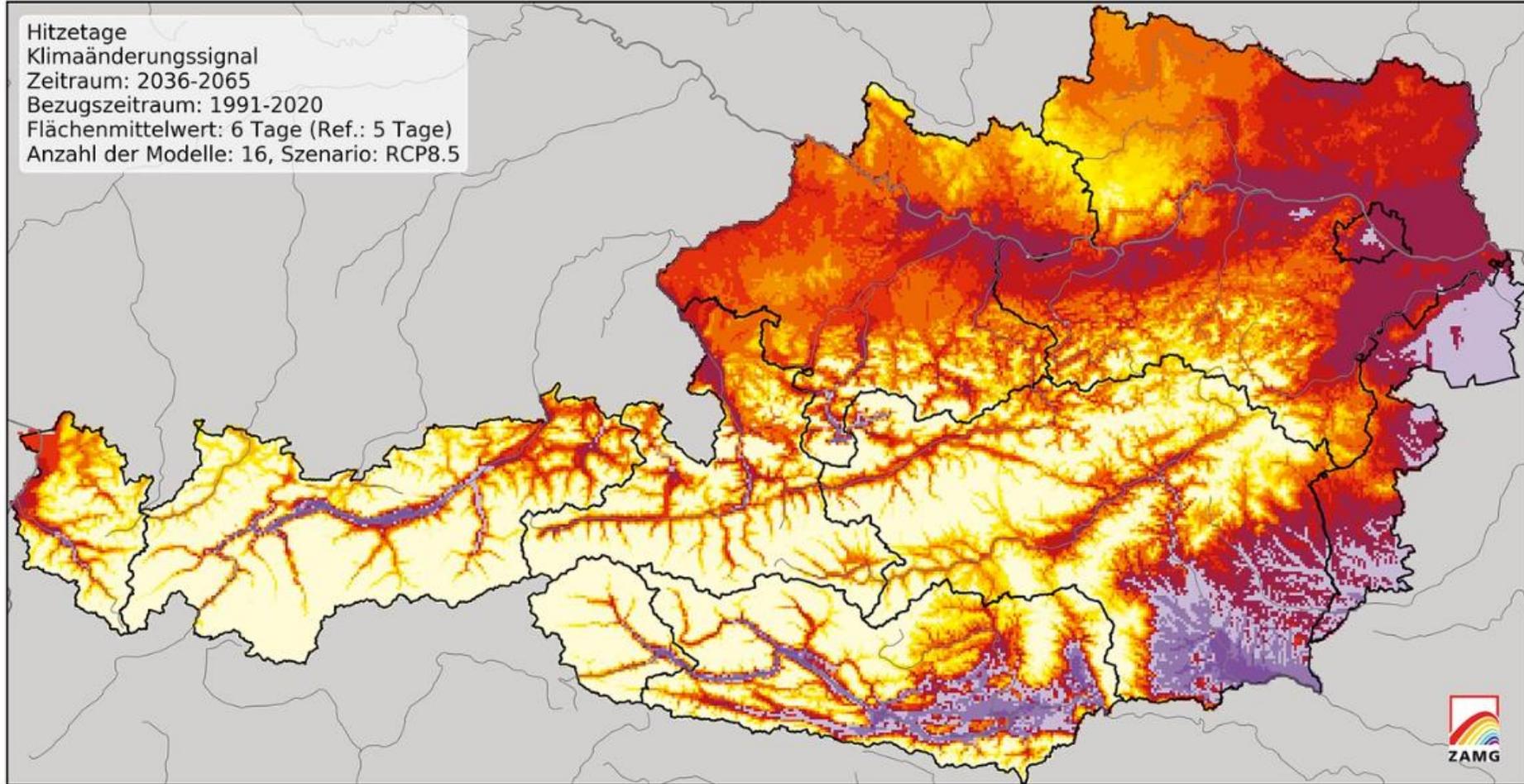


Thermal Concrete Activation (TCA) or: the silent power of mass



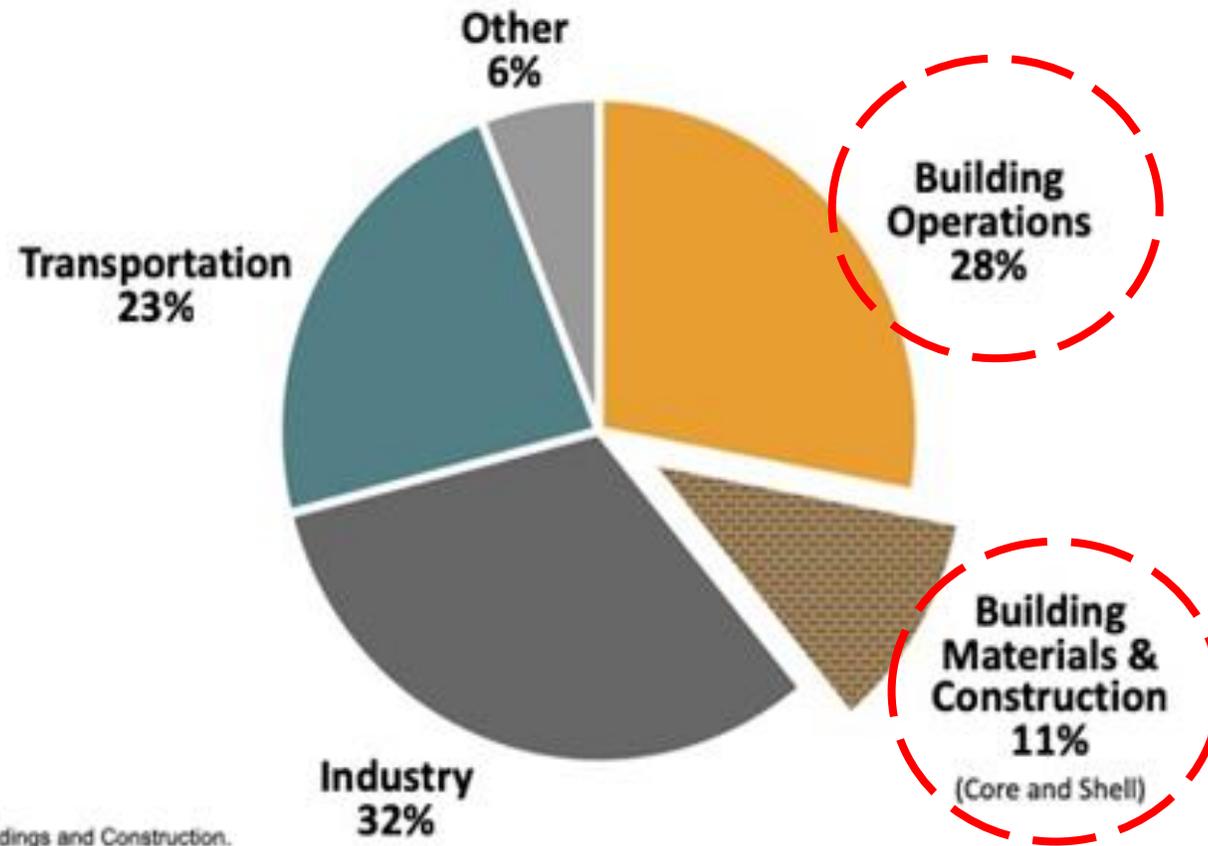
Sebastian Spaun
Director, Association of the Austrian Cement Industry

Heat waves are getting more and more intense



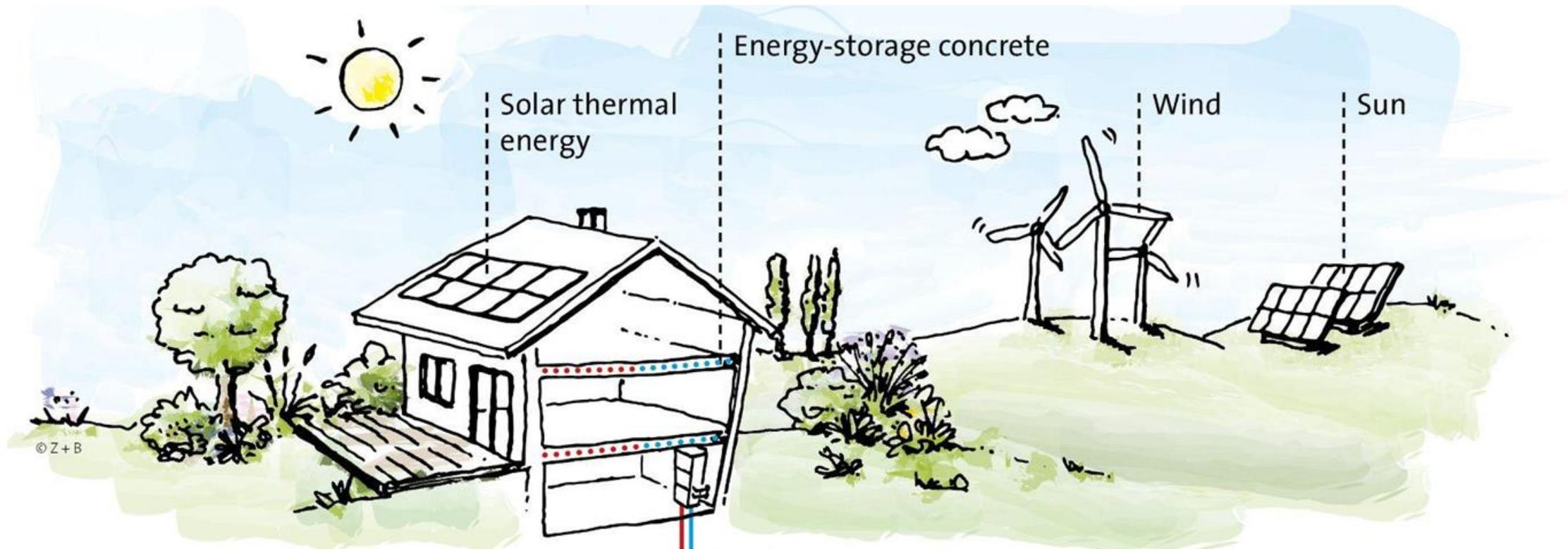


Global CO₂ Emissions by Sector



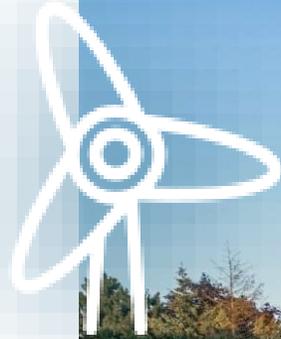
Source:
Global Alliance for Buildings and Construction.
2018 GLOBAL STATUS REPORT.

Thermal Concrete Activation (TCA) or: the silent power of mass



© Z+B

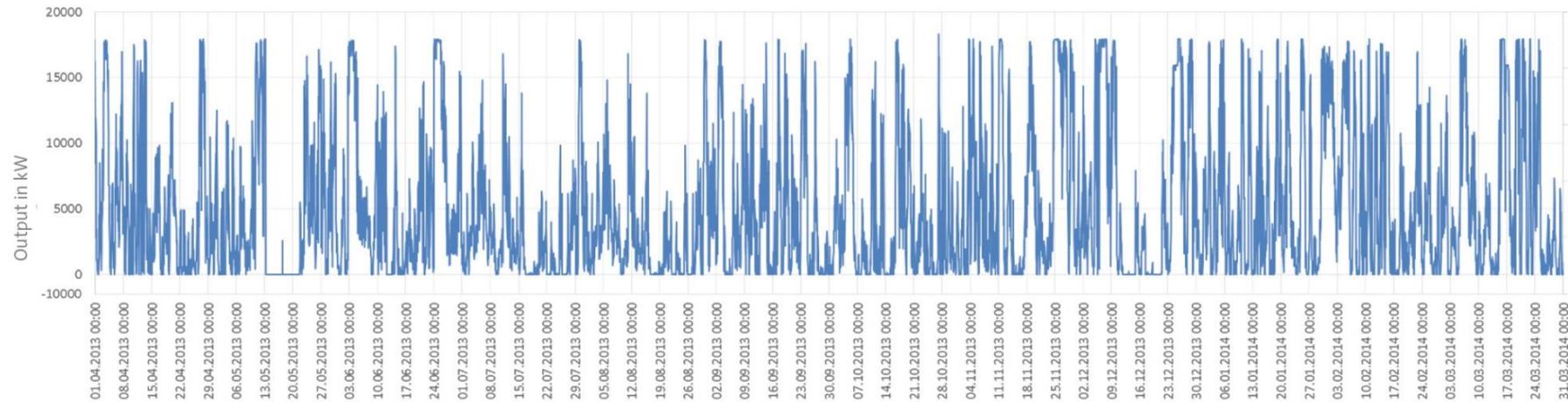
A Milestone



Close to
Vienna, Austria

A typical load profile of a wind farm

April 2013 – March 2014



Release signal for heat pump



Is this the most affordable battery in the world?



© Aichinger Hoch- und Tiefbau GmbH



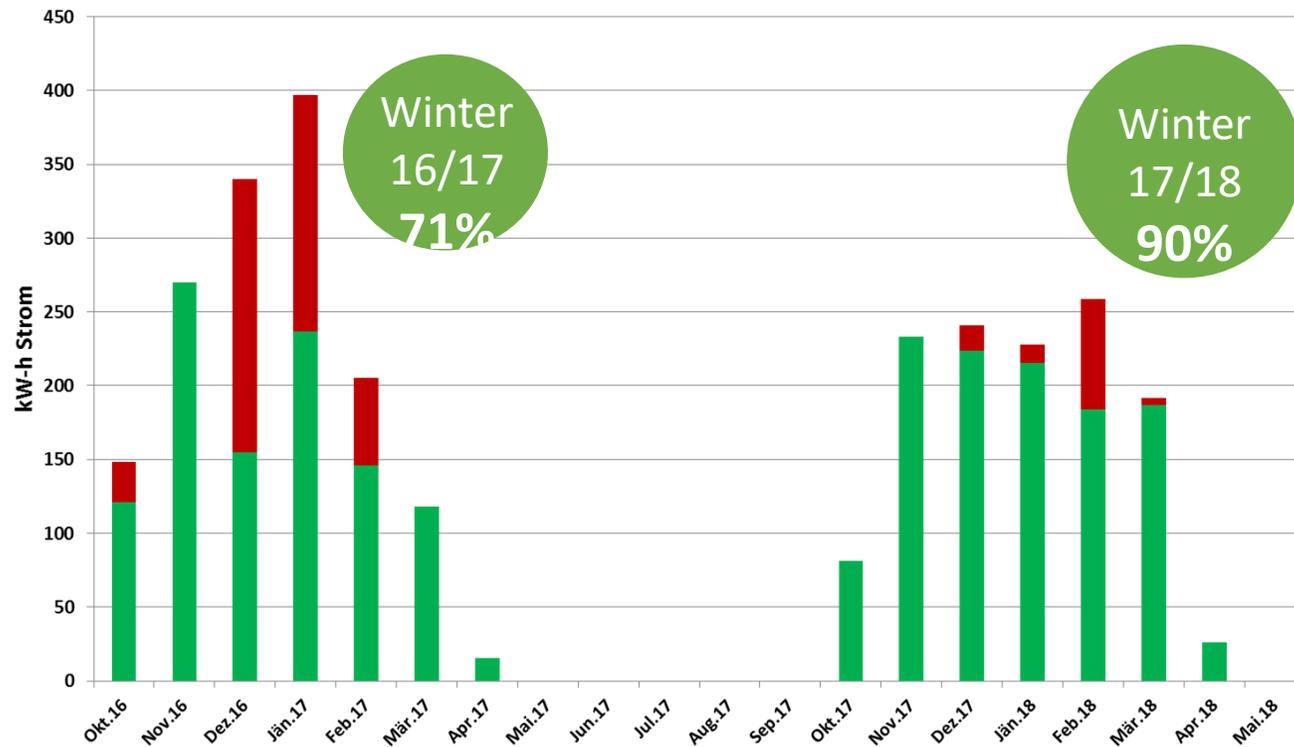
Water temperatures in the pipe registers:

Winter (heating) → 24 - 28°C

Summer (cooling) → 20 - 23°C

Tackling the operational emissions of buildings

Concrete stores renewable energies



Energy storage concrete enables the heat pump to be supplied with green electricity



Source: S. Spaun, VÖZ

For the first time heating + cooling in residential construction in Vienna with BTA for 1-2 €/m².a!!!



© Z2_MGG22_(c)_Norbert Mayr
Rechts: Z+B/Kromus

Building component activation + heat pump + wind power surplus

Summer in the MGG22

Outside temperature

6. – 13. Juli 2020

Inside temperature



The "cool" educational campus: Liselotte Hansen-Schmidt

- 1,400 children & teens, ... year-round operation (incl. summer)
- 20,000 m² with a 230 kW heat pump

Coverage with renewables > 95%
Energy costs < ¼ of buildings with conventional solutions

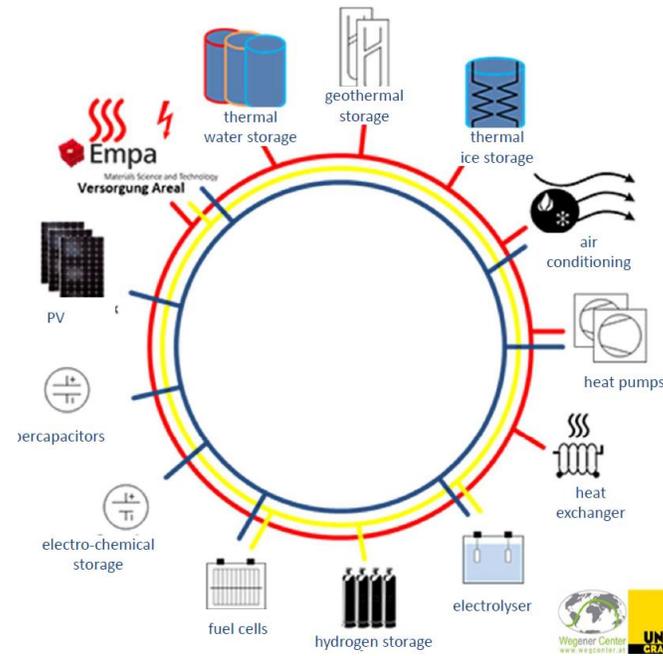


Bildquelle: Franz Ertl/V+P

Think global, act local!



Buildings as energy hubs ...



... in highly integrated energy and information networks

