



Data for a new normal in Energy

Energy Data Hackdays 2021

20. September 2021, Michael Koller

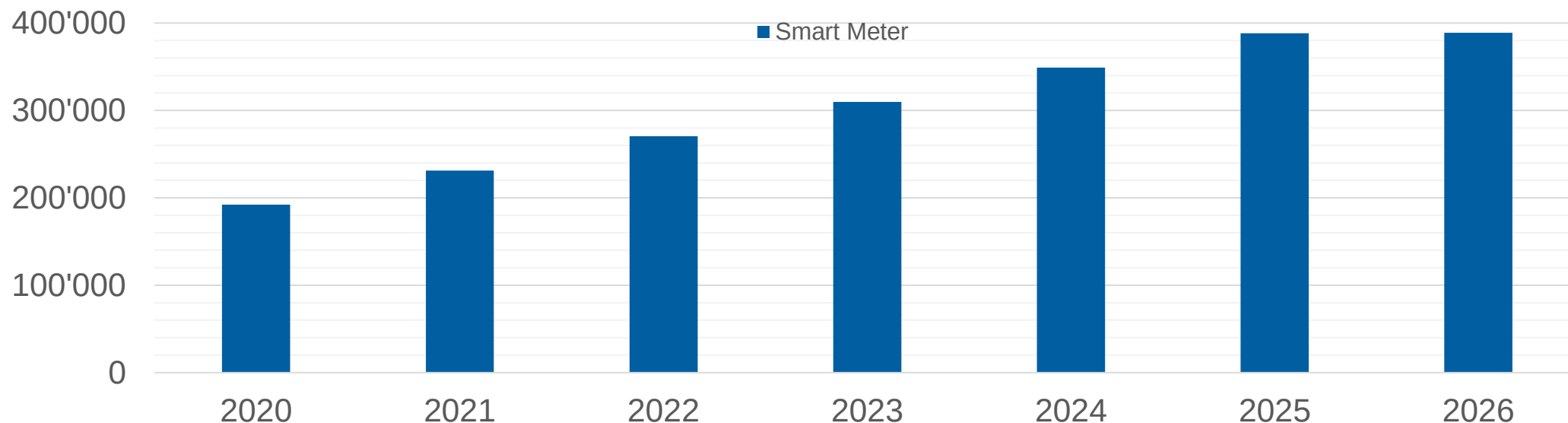
Agenda

- Smart Meter Data – the most valuable ground truth in power systems
- Data driven customer empowerment
- Grid planning in the age of machine learning

Smart Meter Data

EKZ Smart Meter Rollout

- EKZ plans to have 100 % Smart Metering by 2026 (approx. 400 k meters)
- Ahead of government mandate to have 80 % Smart Meter by 2027



Customer Empowerment

Load disaggregation for customer engagement

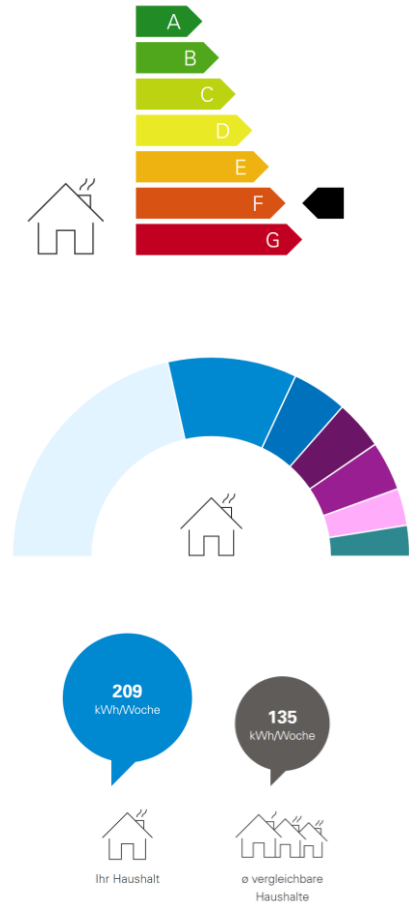


Smart Meter 15'
load profile

day-after

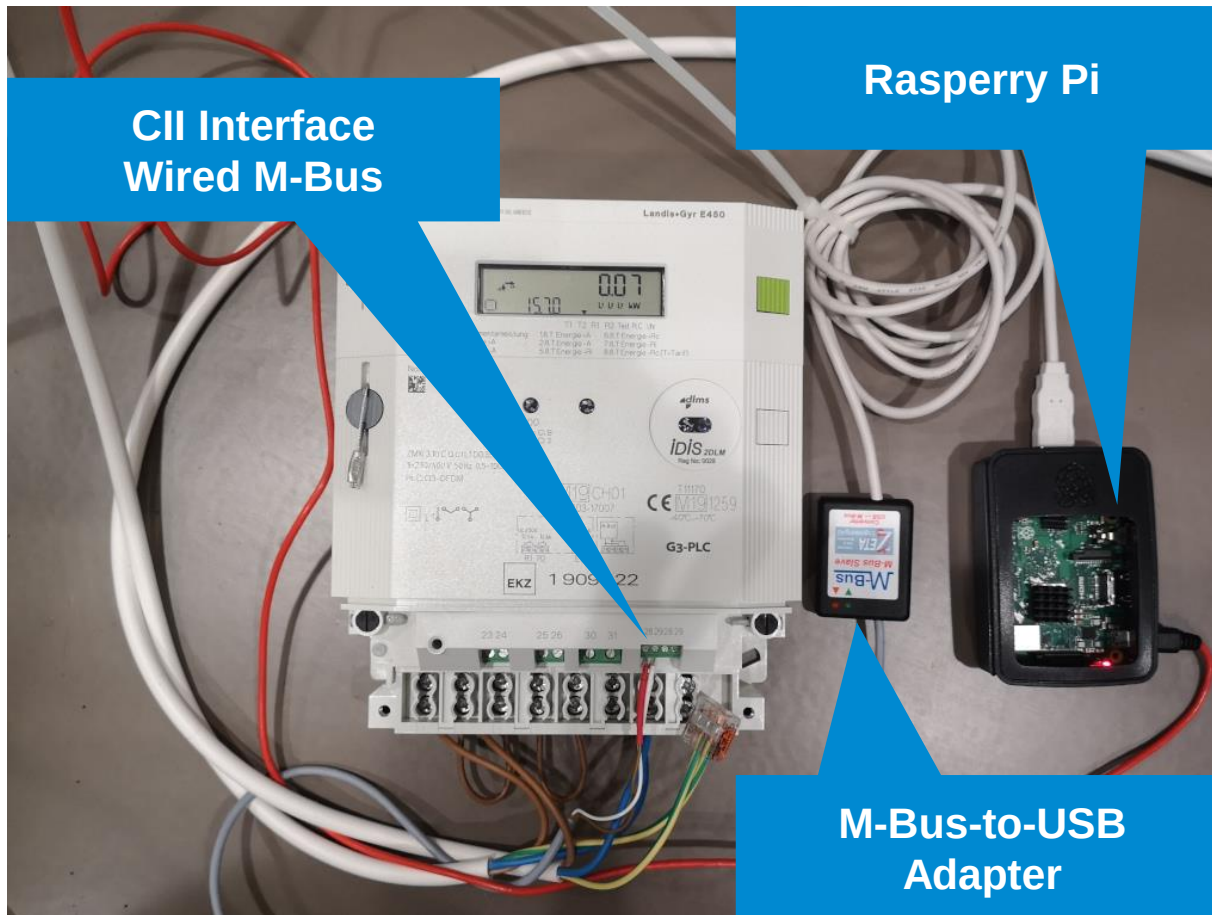
External Data,
e. g. Temperature

Data Analytics &
Machine Learning



Local Customer Interface for Smart Meters

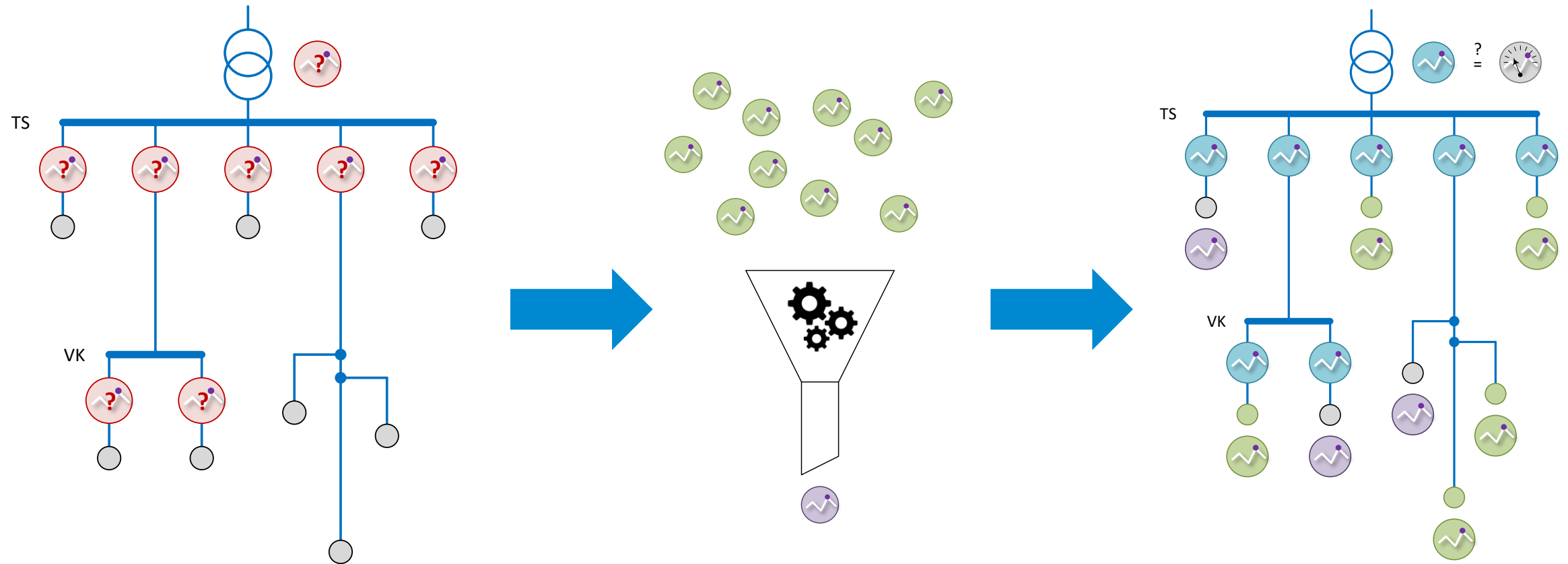
EKZ Challenge Energy Data Hackdays 2020



- Proof of Concept with Raspberry Pi for reading a smart meter locally at the event last year (“Read your own smart meter” challenge)
- **Open source** solution developed by EKZ and software partner to read the local interface of the Landis+Gyr E450 smart meter
- Free collaboration basis for everyone to integrate additional other smart meters – **Feel free to contribute!**

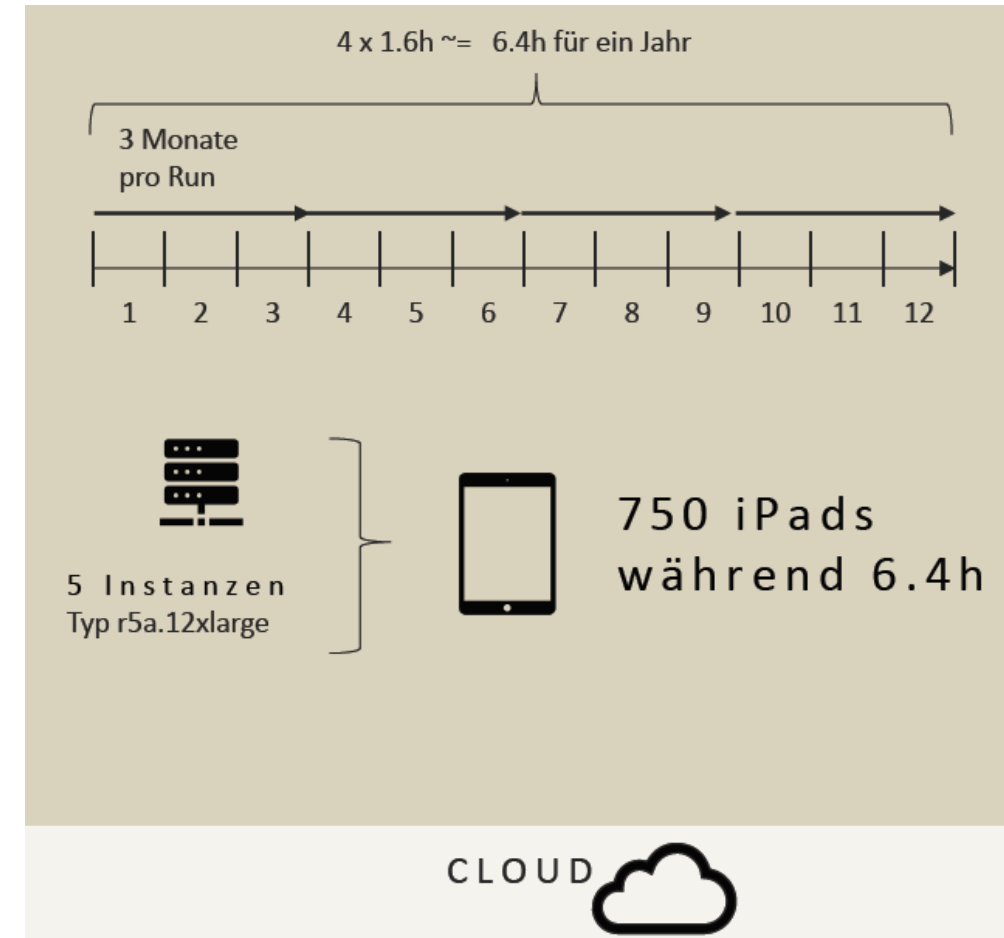
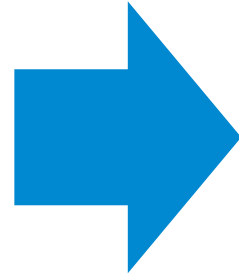
Grid Planning

Synthetic load profiles based on machine learning

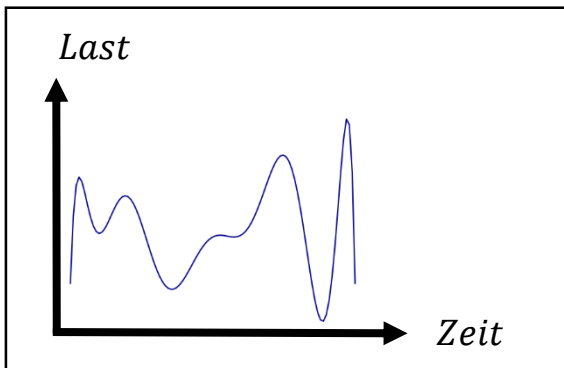


First of a kind load flow simulation with real and synthetic 15 min Smart Meter load profiles

Cloud computing for scalability

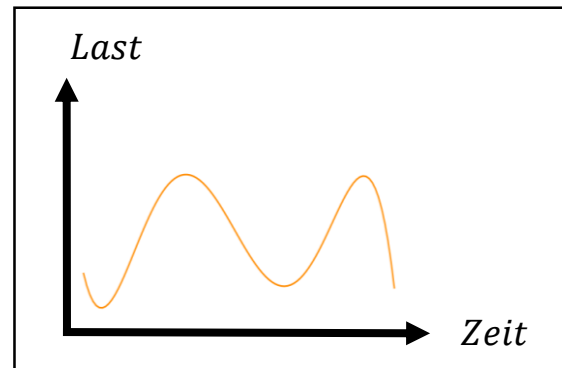


Top down machine learning and bottom up physical modelling for scenario generation



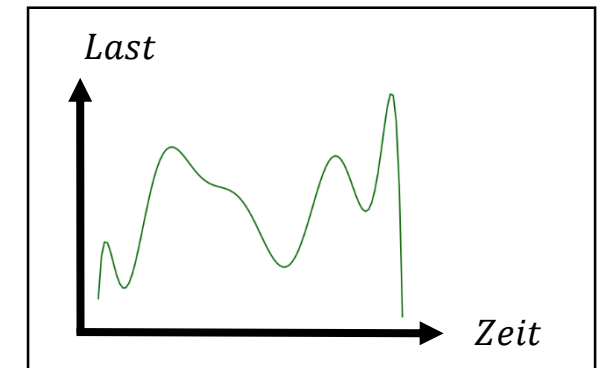
Synthetic load profiles
from machine learning

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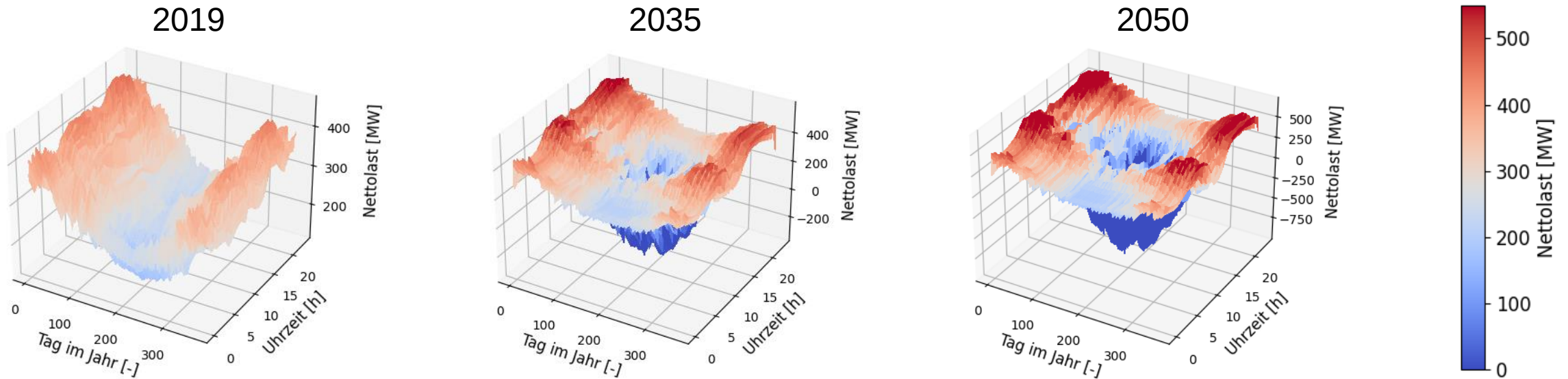
Physical model for
flexible loads (heat
pump, charging station
etc.)

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Realistic customer load

Example scenario results



- Stochastic grid simulations for grid investment allocation
- Data driven strategic asset management

Conclusion

- Data enables the energy transition
- Empowering the customer with data analytics drives energy efficiency
- Data driven grid planning for significant savings in the context of the uncertainties in the energy transition

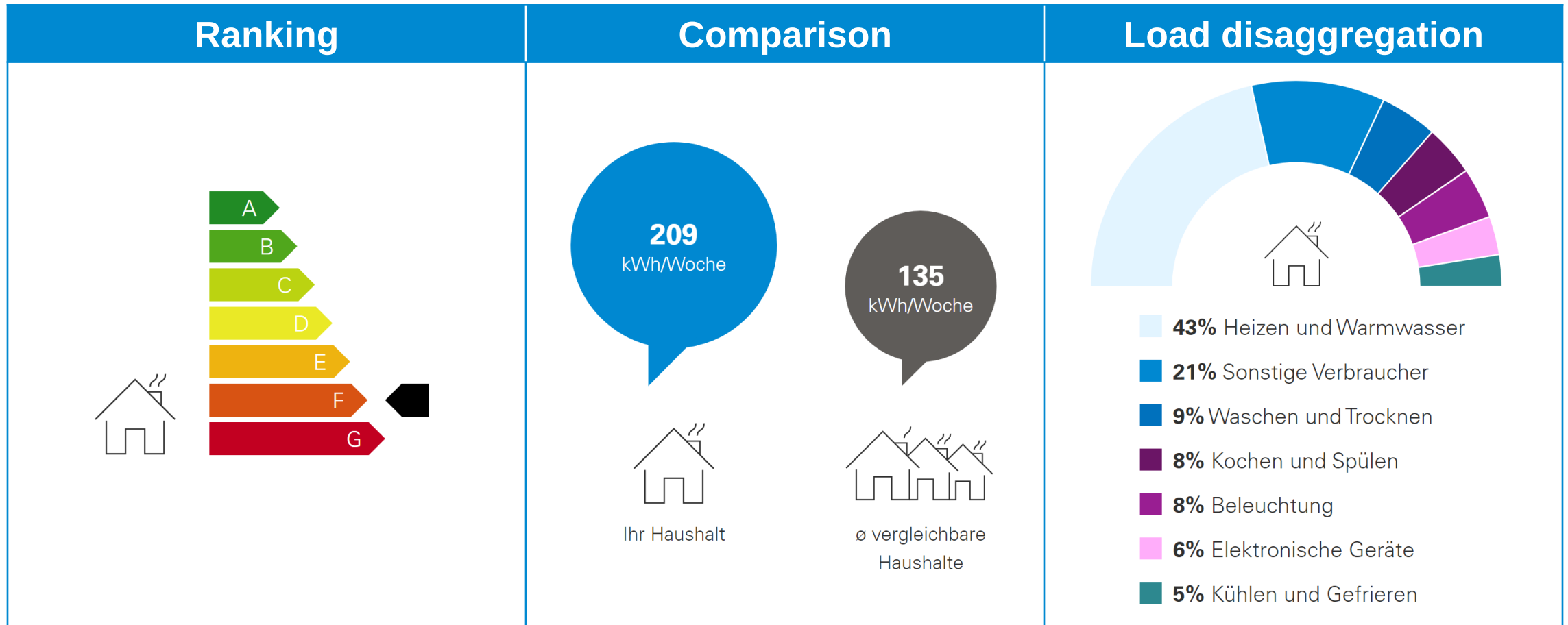
Join an EKZ challenge if you like data!



EKZ

Appendix

Energy efficiency advice based on Smart Meter data



Load profiles for every single grid element

