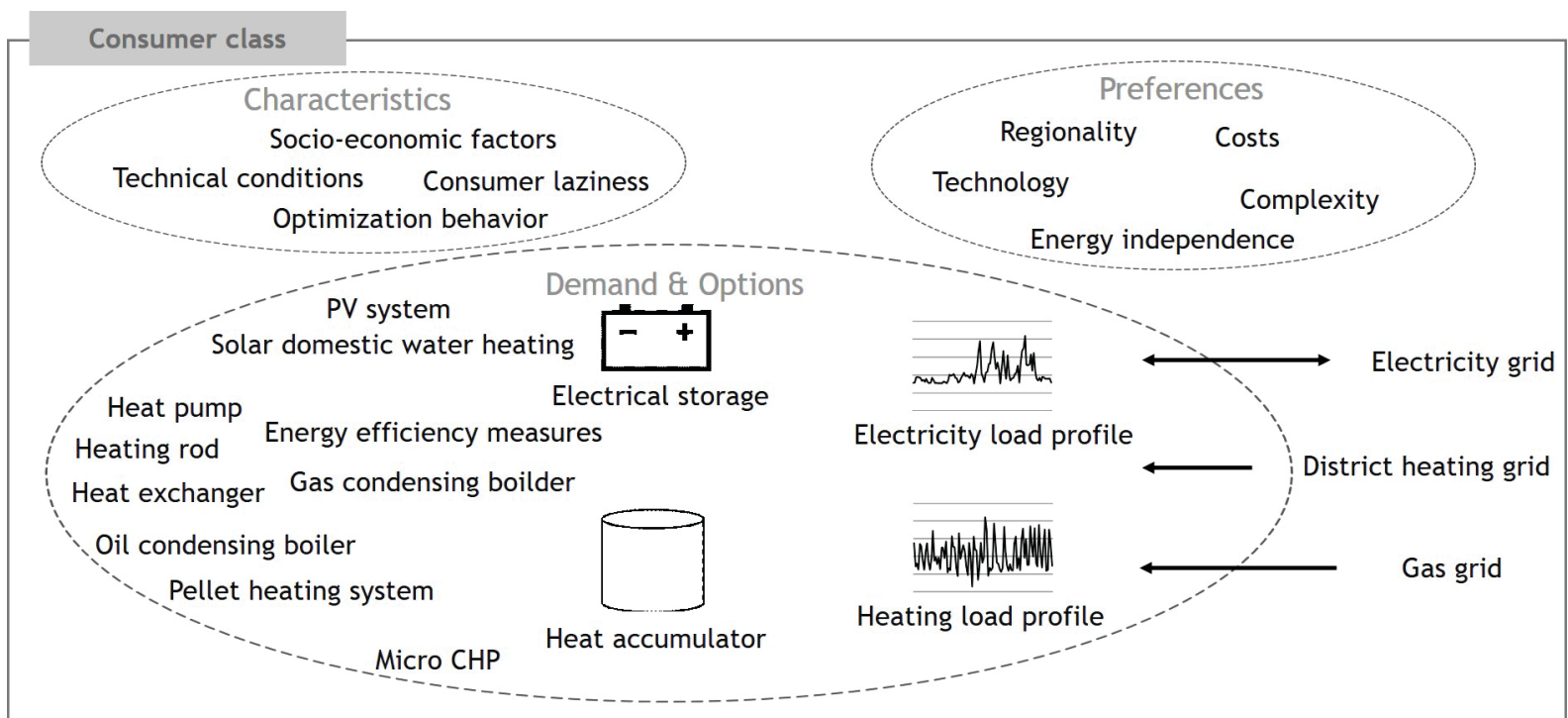


COMODO

The Model

COMODO simulates the diffusion process of distributed generation technologies in the residential, tertiary and industry sectors. In a first step, consumers are clustered into consumer classes according to technical (e.g., electricity and heating demand, available roof surface) as well as socio-economical characteristics (e.g., income, education). In order to satisfy their electricity and heating demand, the resulting consumer classes have the possibility to invest in different technology options such as PV systems, micro CHP, gas condensing boilers, heat pumps, heating rods, electrical storage and heat accumulators. Furthermore, consumers may also implement energy efficiency measures. Aside from monetary factors, COMODO takes into account other preferences such as efforts to achieve energy independence or consumer laziness.



On the one hand, model results show the optimal solutions for individual consumer classes with regard to installed capacity, energy demand, generation profiles as well as emitted CO₂-emissions. On the other hand, the model provides insights into the aggregate potential as well as the temporal and spatial diffusion processes of distributed generation.

COMODO

Applications

Optimization of the energy supply for different consumer classes

COMODO identifies various energy configurations for individual consumers or representative consumer classes as well as calculates cost deltas between alternative configurations. In doing so, the model takes into account different types of decisions based on consumer priorities (e.g. cost minimizing, non-monetary preferences).

Temporal development and diffusion process

COMODO shows the temporal development of distributed generation with regard to previously installed technologies as well as consumer laziness.

Potential of distributed generation technologies on the regional level

COMODO reveals the diffusion process of distributed generation for a given consumer class on the regional level or for a specific target area.

Analysis of a changing framework

COMODO allows the effects of political measures such as subsidies, CO2-measure, or market developments (e.g., cost depressions) on the diffusion of technologies to be quantified.

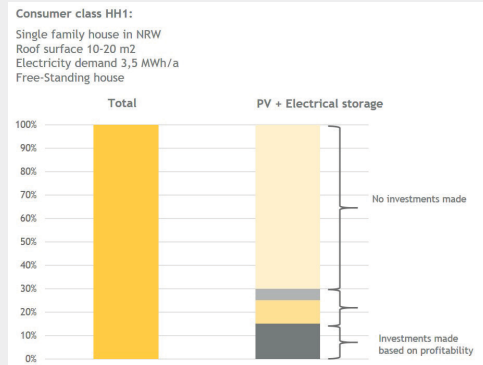


Figure 1: Exemplary output for a single family house in the year 2020

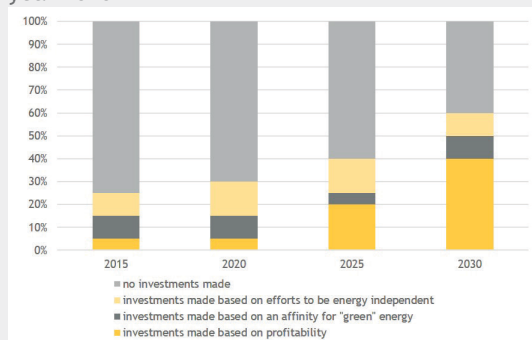


Figure 2: Diffusion process of PV and electrical storage over a defined region

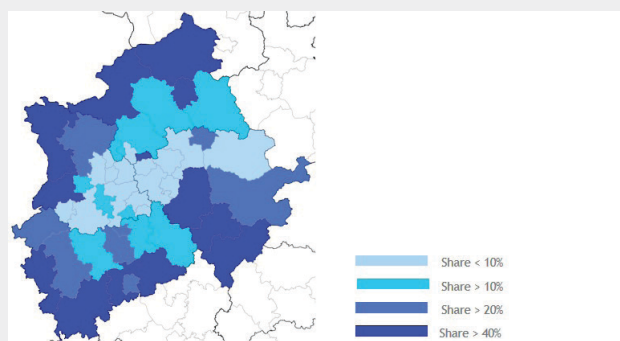


Figure 3: Share of consumers investing in a specific technology by region