

myiDM +energy

iDM Energiesysteme

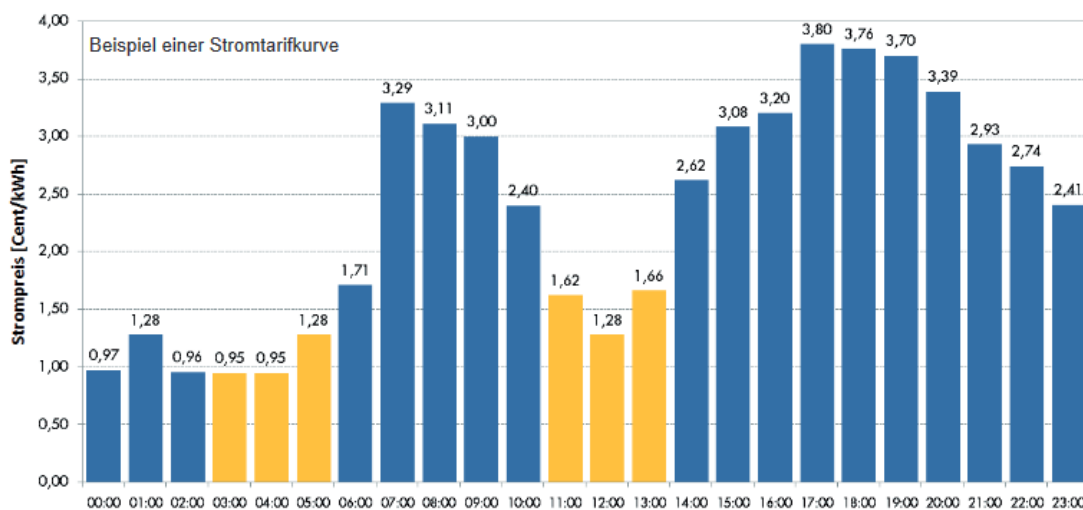


Figure 1: Variable electricity tariffs are used to optimize costs of heat pumps electricity consumption

Summary of IoT case

“iDM Energiesysteme” is an innovative Austrian heat pump manufacturer located in Eastern Tirol. Their product “myiDM +energy” aims to consume electricity preferably when electricity prices are low. Another intention is, besides the reduced costs, that the prices are mainly then lower, when a lot of cheap wind and solar production is available. This correlation is expected to enforce in the future. At the current status, the application mainly targets residential heating/end consumers.

Prerequisite for participation is an iDM heat pump with the corresponding software version, as well as a smart meter and an internet connection. Further, the consumer needs a variable electricity tariff. Currently, the system supports three Austrian electricity suppliers with flexible tariffs.

The heat pump system can use the heating buffer, the domestic hot water storage as well as thermal building masses as energy storages to shift electricity consumption in time. To optimize the electricity consumption for spatial

heating, room temperature set points are tuned. For this purpose, day-ahead hourly prices are pulled from the electricity supplier. If the hourly price is lower than the day's average electricity price, then the set point is increased, if it is higher, then it is decreased. Further, domestic hot water preparation can be shifted by a certain amount of time, which can be chosen manually. If the prices at that potential time are lower than at the original time, the domestic hot water preparation is shifted. In this way, the costs for heat pump operation are reduced. The application can already be purchased and used.

In combination with a photovoltaic system, the heat pump is able to use the surplus energy for spatial and domestic hot water heating, to increase the self-consumption of the household. Using variable tariffs and photovoltaic surplus production can be also used in combination, there is no prioritization, the storages are heated whenever the described rules apply.

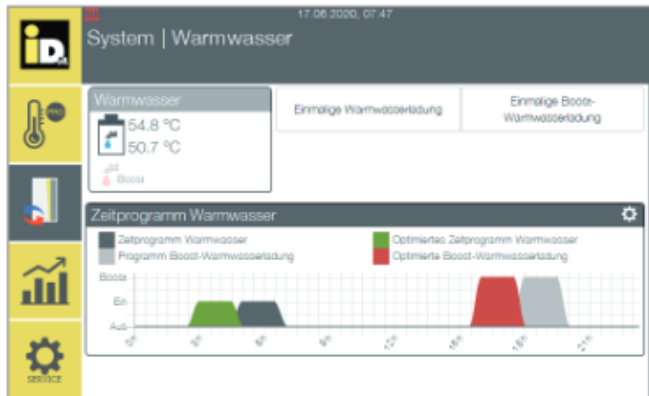


Figure 2: User interface showing potential shift of domestic hot water heating

Results

- Benefit for the user perspective: Depending on the background electricity tariff, potentially lower costs for provision of heat and hot water
- Improved system flexibility through reduced demand in peak-hours and correlation of demand and RES-supply
- Perspectives and bottlenecks: low-threshold technology, easy to deploy

FACTS ABOUT THE IOT CASE

IoT category: optimize HP operation according to prices, increase PV self-consumption

Heat supply capacity: 2 kW - 1500 kW

Heat source: air, ground, water

Data required: day-ahead variable electricity prices

Data interface: Smart meter, iDM heat pump, internet connection

Quality-of-Service: daily, online

Technology Readiness Level: TRL 9 (system works and proven in operation)

Link to webpage:

<https://www.idm-energie.at/myidm-energy/>

Contact information

Andreas Walder, iDM Energiesysteme GmbH

✉ andreas.walder@idm-energie.at

☎ +43 4875 6172 367