

Smart Energy and Smart Grids

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References

- [1] M. Mohammadi, Y. Noorollahi, B. Mohammadi-ivatloo, a H. Yousefi, “Energy hub: From a model to a concept – A review”, *Renewable and Sustainable Energy Reviews*, roč. 80, s. 1512–1527, dec. 2017, doi: 10.1016/j.rser.2017.07.030.

1 Energy Hubs

One interesting approach for future energy systems are the **energy hubs** [1]. It reflects movement towards **multi-energy systems (MES)**, where different energy carriers and systems interact together in a synergic way.

This concept requires a suitable tool for integrated management of the system components.

Key element form here **Energy hub (EH)** that can be defined as the place where the production, conversion, storage, and consumption of different energy carriers takes place.

As inputs, energy hubs consume power (e.g., electricity, natural gas) and provide certain required energy services such as electricity, heating, cooling, etc. Fig. 1 shows an example of an energy hub.

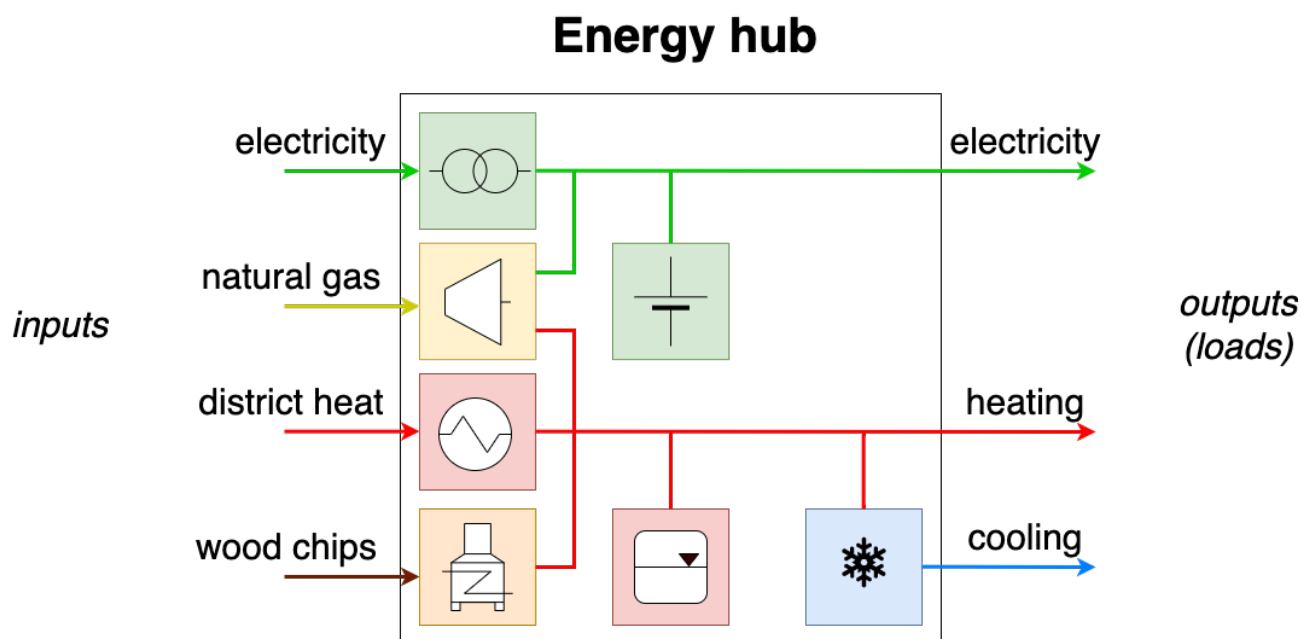


Fig. 1 Example of an energy hub and its components, containing a transformer, a micro turbine, a heat exchanger, a furnace, absorption cooler, a battery, and hot water storage.