Subject Areas

Conversion in Energy Systems

In supply networks with high proportions of renewable energies, supply and demand are often differentiated by energy. The causes for this are both a lack of energy storage and remote generation locations. As part of renewable energies with lots of decentralised photovoltaic and solar thermal energy installations, stand-alone solutions are also possible.

For example, surplus electricity is used to load a suitable storage system. In this case, the electrical energy is used in an electrolyser to split water and the resulting hydrogen stored directly or converted chemically by methanation. After conversion, the generated methane can be stored and used in a gas turbine for reconversion into thermal, mechanical and even electrical energy. An electrolyser therefore represents an electrical-chemical conversion, whereas methanation is a chemical-chemical conversion.

A well-known conversion component in energy systems used in building services engineering is the heat pump. This transfers electrical and thermal low-calorific energy into thermally usable energy for heating purposes.

Subject Areas	2E0 Products
Chemical-electrical	**ET 292** Fuel Cell System
Chemical-thermal-mechanical-electrical	**ET 794** Gas Turbine with Power Turbine
Electrical-thermal-thermal	**ET 102** Heat Pump Trainer **HL 320.01** Heat Pump