Technology: Fuel cell micro-CHP

What?

A fuel cell is a system that converse hydrogen and oxygen directly to electrical energy via an exothermal electrochemical process, with warm water as by-product. Because of this direct conversion (without a step in between of burning and mechanical power production) this technology can reach very high electrical efficiencies.

For years, the fuel cell is called *the* technology of the future. Anno 2016 there are indeed more and more products available on the market.

There are different types of fuel cells, often categorised on the type of used electrolyte.

Why?

Stationary fuel cells can reach high electrical efficiencies. Other advantages are that there are no moving parts and therefore it involves low maintenance and has a quiet operation.

Cost

The investment cost of a fuel cell micro-CHP is still very high and it is still difficult to realise a financial benefit (low payback time) at the moment without extra subsidies. As with a lot of new technologies, the investment cost will drop as soon as the production will rise and market will grow. The market is still evolving, both on technical optimisation, increase of lifetime and with respect to prices.

Where?

Fuel cells can be applied in single family houses to replace a classical boiler. A natural gas connection (or direct H2 connection) is required as the used fuel is mostly natural gas (or H2).

Manufacturers [1]:

- Viessmann (Vitovalor 300-P)
- Dantherm power (PEMmCHP G5)
- RBZ (inhouse5000+)
- Hexis (Galileo 1000 N)
- Elcore (Elcore 2400)
- Vaillant Group (Vaillant G5+)

Want to learn more?

[1] http://enefield.eu/