# Micro CHP Systems Explained

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Micro combined heat and power (Micro CHP) technology is able to produce both heat and electricity at the same time.

This is considered a low-carbon process as it's more efficient than burning a fossil fuel for the sole purpose of generating heat while also relying on energy from the grid.

Rather than having to rely on a boiler for heating and an energy supplier for electricity, a micro-CHP system makes it possible for your home to generate both from a single unit.

## What is a Micro CHP system?

CHP stands for combined heat and power, meaning that they're capable of simultaneously generating both heat and electricity through a single process. Through the process of generating electricity, heat is produced as a byproduct, rather than it going to waste a CHP system captures that heat to make it usable.

The main output of a CHP system is electricity with heat being a byproduct of that generation. However, there is typically 6 times as much heat as electricity at the end of the generation process.

Many industrial buildings have been harnessing CHP technology for a number of years but with micro-CHP adopting a more compact design, they're now suitable for domestic properties too.

## How does a micro-CHP system work?

A micro-CHP system can be installed in place of a conventional gas boiler and can be fuelled by either natural gas supplied from the mains or LPG. There are 3 different types of micro-CHP, each generating electricity in a different way.

**Taken from Boiler Guide.co.uk**

### Fuel cell

Rather than burning a fuel, fuel cells generate electricity through a chemical process, which breaks the fuel into its parts.

Hydrogen fuel cells, for example, are made up of an anode that separates the hydrogen into electrons and protons before the electrons move through a circuit, generating electricity.

### Benefits of Micro-CHP systems

Installing a micro-CHP in place of your boiler comes with a number of benefits.

### Heat and electricity generation

A single unit that's able to generate both heating and electricity is a much more efficient process than only having a boiler which won't provide electricity.

By generating your own electricity, you won't have as much reliance on your energy supplier, which will help to reduce your bills. Generating your own electricity will generally come at a lower price than if you were to buy the same amount from a supplier.

### Lower carbon emissions

While micro-CHP systems still use fossil fuels, it's still considered to be a low-carbon technology and could help to lower the carbon footprint of your home.

### Straightforward installation

If you already have a gas boiler then it's possible that a micro-CHP unit could simply be installed in its place.

### Considerations of a micro-CHP system

Micro-CHP technology is still very unfamiliar technology to homeowners, especially across Europe. In Europe, an estimated 40,000 have been installed but the technology is much more popular in Japan where around 230,000 are currently in operation.

One of the big benefits of micro-CHP technology is that the electricity generation is considered much less carbon intensive. Having one installed in your home could potentially shrink your carbon footprint but as renewable energy generation goes from strength to strength, buying from a supplier is greener than ever. And there are already energy suppliers delivering '100% renewable' energy.

### Viessmann Vitovalor CHP

One of the few micro-CHP systems currently available in the UK is the **Viessmann Vitovalor**, a fuel cell heating system that can generate as much as 18 kWh of electricity each day.

**Taken from Boiler Guide.co.uk**

Natural gas is used, supplied by the grid, to heat water while fuel cell technology extracts the hydrogen to produce energy.

Within the unit is a 220 litre hot water cylinder, which stores the hot water before it's delivered to the taps.