

Bonn, 13 June 2012

## Field-testing fuel cell heating units

A major technological hope is nearly ready for the market

Fuel cells enable electricity and heat to be generated in a single process. In contrast to previous domestic heating systems, fuel cell heating units can supply both existing and new buildings with heat while also generating electricity as well. The new BINE-Projektinfo brochure “New approaches to supplying domestic energy” (05/2012) presents the initial findings from a research project in which natural gas-operated fuel cell heating units are being tested with private customers under realistic conditions. The aim is to further improve the systems in both technical and economic terms.

For a successful market introduction, the fuel cell heating units still need to be improved further in terms of their service life, efficiency and costs.

Nevertheless, they have been able to make considerable progress during the last few years: the lifetime of the systems has now doubled to 20,000 hours and is increasing further. Initial small-scale production runs for field tests have enabled materials and production conditions to be optimised, including for the supply chains. The investment and operating costs have also been reduced as a result. 230 systems are being field-tested that have now completed around 1,000,000 operating hours in total. On average the devices have completed 4,000 to 6,000 operating hours, whereby individual units have already completed 15,000 hours (as of May 2012).

The field test will make it possible to determine whether the technology has reached maturity. In addition, specifications, standards and training materials are being developed for specialist installers. Two different types of fuel cell systems are being used: the polymer electrolyte membrane fuel cell (PEMFC) works in a temperature range around 80°C and the solid oxide fuel cell (SOFC) works at 600°C.

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