Project Information

Subject: **Household Energy Supply Using Fuel Cells**

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Project Partners: Vaillant GmbH
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E.ON Engineering GmbH
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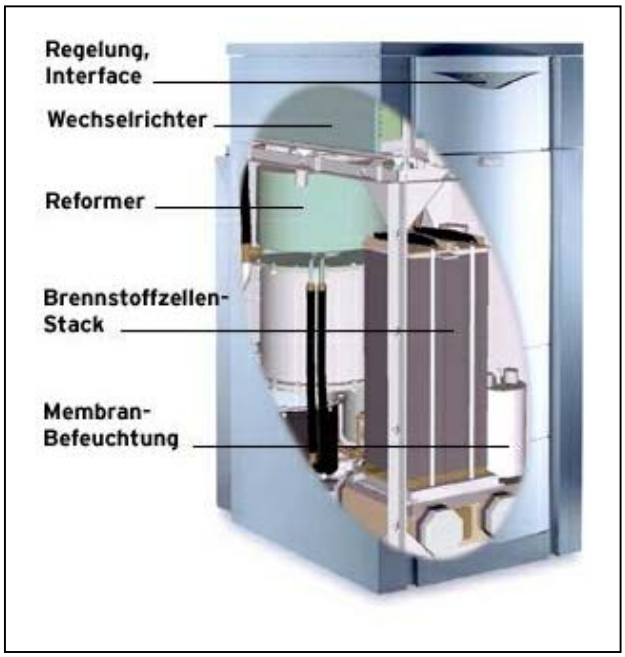

Description of Project:

Within the framework of the project presented here it is intended to examine the technical and economic feasibility of the use of polymer electrolyte membrane fuel cell installations in the supply of buildings. For this purpose an association consisting of EUS, Emscher Lippe Energie, E.ON Engineering, Ruhrgas and Vaillant is developing a fuel cell heater for household energy supply.

One focus of the project is on the development of a superior control ("energy manager") for cost-optimised operation of the system as a whole, consisting of a fuel cell, extra burner and heat accumulator. For the design of the energy manager, high-resolution load measurements were initiated in a number of multi-family houses at the beginning of the project.

In addition laboratory tests are planned with respect to the network feedback caused by the fuel cell heater. Both the feedback of the inverter to the network and that of the network to the fuel cell are the subject of investigation here. This work is being conducted in close collaboration with the company Aixcon from Stolberg.

With a view to verifying the practical suitability of the fuel cell heater it is intended within the project to operate the PEM fuel cell installation with different natural gases. In the course of the investigations an estimate will also be made of the effectiveness of the desulphurisation installation. In addition emission measurements are planned. Apart from the short-term and medium-term investigations, a crucial factor in a successful market launch is the long-term degradation of the PEMFC installations. It is therefore planned to conduct measurements of electrical efficiency over an extended period to obtain sound data in this respect.

After the test phase at the end of 2001 resp. at the beginning of 2002 three fuel cell heaters are to be installed in multi-family houses or a commercial facility in 2001 and operated for about 1 year under actual conditions.

Funded by the State of Nordrhein-Westfalen