

Case Study

Client - Biomass Tech – Western Europe

Project – Biomass Heat Pipe Reformer

Producing electricity from biomass with gas turbines or fuel cells requires hydrogen rich fuel gases with reasonable high heating values. These heating values are only achievable by means of all thermal gasification or all thermal steam reforming. The BioHPR project aims at the development of an innovative all thermal gasifier concept the 'Biomass Heat pipe Reformer'. The innovative idea of the concept is to apply the heat for the endothermic gasification process to the reformer by means of high temperature heat pipes. The concept promises a particularly small all thermal gasifier that produces hydrogen rich gases for small-scale CHP applications with micro turbines and fuel cells. Key features of the new concept are its simple ness and a flexible heat-to-power ratio, which makes the concept competitive even without adequate heat consumer.

The excellent heat transfer characteristics of the heat pipes combined with high heat transfer rates between fluidized bed and heat pipe surface allow to design a very compact, highly integrated apparatus for steam gasification of any kind of biomass. The Biomass Heat Pipe Reformer with its flexible heat-to-power-ratio is an ideal solution to use the energy potential coming from the agricultural residues economically and ecologically.

Hitherto the single biggest challenge to the BioHPR project was the high cost of high temp heat pipes. Econotherm's low cost high temp heat pipe manufacturing process has significantly improved the viability of this technology.

