

Project Fact Sheet

Project Title Development of a novel steam storage system for a flexible biomass CHP plant to increase system stability (KomBio)

Keywords Biomass, flexible power generation, sector coupling, steam storage, renewable energies

Project Details

Project Start	2019	Duration	2.5 Years
Grant Scheme		Project ID	22025517
Funding Authority	FNR		
Project Budget	531,895.14		
Project Leader	Prof. Dr.-Ing. Wilfried Zörner		
Contact Person	Katharina Bär		

Project Partners Stadtwerke Pfaffenhofen, Danpower Biomasse Pfaffenhofen GmbH, Ingenieurbüro Harry Wilhelm

Description

The aim of this project is to develop and test an innovative steam storage system for a biomass cogeneration plant (BMHKW). This storage system is intended to decouple the sluggish steam generation from the flexible steam generation. By charging and discharging this storage system, the electrical energy fed into the grid can be increased or decreased as needed. Relief of the power grid via balancing operation between the BMHKW and volatile generators (wind and photovoltaics (PV)) can thus be enabled. For example, the BMHKW can reduce its output when wind and/or PV generation is high and increase it again when renewable generation is low. The BMHKW can be operated with this steam storage system similar to a battery storage as "electricity storage". Thus, volatile generators are operated together with the BMHKW as a combined cycle power plant.

The planned storage system is composed of a novel combination of a solid concrete storage and a Ruths steam storage. This storage system, including reconversion unit, control and interconnection, will be conceptualized and experimentally developed. Furthermore, an operating regime for this storage system will be developed and tested. It is based on consumer and generator data and will enable the BMHKW to operate in a way that reduces the load on the grid.

All the findings of this project will then be processed for universal use at other locations.