Project Fact Sheet

Technische Hochschule Ingolstadt
Institute of new Energy Systems

Project Title	**SmartBio - Biogas plants as players in new intelligent, regional markets**
Keywords	biogas plants, Smart Market, congestion management, grid-related flexibility, energy economics

Project Details

Project Start	February 2018	**Duration**	3,5 years
Funding Authority	BMEL		
Project Management	FNR	**Project ID**	22405116
Sponsor Program	Strom aus Biomasse in zukünftigen Bioenergiesystemen		
Project Budget	320.557 €		
Contact Person	Prof. Dr.-Ing. Uwe Holzhammer (Project Leader) Dr. Annika Tronnier		
Project Partners	Stadtwerke Rosenheim GmbH & Co.KG; KWH Netz GmbH		

Description

The SmartBio research project focuses on the revenue potential of biogas plants in a new market (Smart Market). The main research objective is the power grid-stabilising capability of flexible biogas plants. In the context of the SmartBio project, these flexible capacities can be marketed in the future on so-called Smart Markets as addition to the "traditional electricity markets". On the "traditional electricity markets", virtual quantities of electricity are traded between generation and consumption without taking the real electricity grid and its possible restrictions into account ("energy-only market"). This fact currently leads to temporary bottlenecks in the electricity grid. The measures taken by the grid operators include feed-in management. The feed-in management allows renewable energy plants to be regulated in the event of a local bottleneck and at the same time provides for compensation of the plant operators for the resulting downtime. The idea of SmartBio is to establish a Smart Market in the grid clusters affected by feed-in management for the period of the bottleneck in order to make efficient use of the downtime. In this project, the Smart Market is a market mechanism that enables cost-effective alternatives to the regulation of renewable energies. The market mechanism determines the cost-optimal technology mix for the relief of the local bottleneck based on techno-economic characteristics of the flexible capacities available in the grid cluster. In contrast to "traditional electricity markets", these temporarily operating smart markets are designed to incorporate the physical restrictions of the distribution grid.

In regional smart markets, biogas plants compete with other market players such as power-to-heat, battery storage and load management. In the course of the project the role of biogas plants and their additional revenue potential in smart markets will be analyzed. For this purpose, representative grid clusters for southern Germany will be used and the perspectives regarding the revenue potential of various biogas plants concepts in smart markets will be examined on the basis of different expansion scenarios for PV and wind energy.