



System integration of biomass fired cogeneration plants

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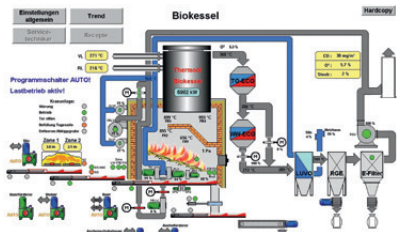


Bioenergy integration

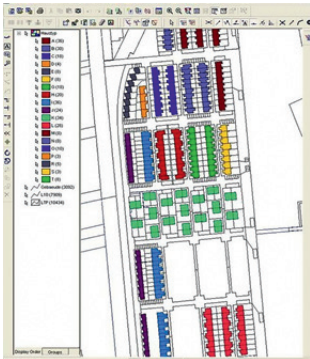
The global energy consumption is constantly growing and conventional, finite primary energy sources are already approaching their natural limits. Among alternative energy sources, biomass plays the most important role, accounting globally for about 80 % of the energy generated by renewable energy sources. Today biomass is most efficiently used in decentralised cogeneration plants, as they combine high efficiency with reasonable fuel transport distances. Although biomass utilisation in CHP plants is a mature and well proven technology, there are still unsolved problems which prevent the broad application of this technology for energy purposes.

Improvement of system control and development of simulation tools

Our solution is dedicated to efficiency improvement and integration of biomass fired cogeneration plants. The developed approach will enable to increase the sustainability of energy supply by the use of renewable woody biomass as an energy source in decentralised CHP systems in combination with different heat sinks such as urban quarters or industrial heating demand. The combination of the simulation based optimisation of operational management technology and the installation of new system components as well as the development and analysis of heat sink strategies will help to increase the fuel utilisation efficiency of decentralised bioenergy CHP concepts.



Model predictive biomass plant control



Supply infrastructure management tools



Research area

Renewable energies, biomass, bioenergy, CHP, combustion, energy system optimisation, energy supply infrastructure, demand infrastructure analysis.

Broad-based experience in the field of bioenergy from plants installed in Germany.

Services

We offer optimal conditions for the development and installation of new control components for the optimisation of decentralised power plant systems and their combination with different heat sinks options. We provide founded knowledge and practical experience not only with regard to model-based plant optimisation but also with regard to hardware modifications of energy generation systems on site.

Methods

We have developed a large and comprehensive knowledge in the increase of efficiency of decentralised cogeneration plants and have supported for many years the development of new energy supply concepts and optimisation measures for existing plants which were applied at production and energy generation facilities.

We implemented a methodology of the heat demand forecast on the basis of virtual 3D building models.

Products

- Studies and expertise
- Research cooperation
- Planning and decision support tools
- Modell predictive control
- Hardware components

Networks

Experience from many national, European and international projects. Several German-Polish cooperation initiatives. We are looking for new science cooperation projects at national, bilateral and international level. Another interesting topics are: technology transfer, product development and deployment, research activities in the area of renewable energies, especially bioenergy.

Experiences

Experience originated from many national, European and international projects. Several European and bilateral German-Polish cooperatives. We have a broad experience base in terms of operational management technology, the strengths and weakness of technologies for the combined heat and power production which have been analysed in previous projects. We have been working with energy supply companies as a research partner, captured and analysed operational data, developed and implemented hardware component solutions.

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