



MARKET ANALYSIS FOR A FLEXIBLE FURNACE FOR BIOGENIC RESIDUES

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PURPOSE

Many studies show, that there is a lot of potential in biogenic residues. But these studies are very theoretically. Investors or possible users need more specific information to decide whether there is a chance of using a certain fuel. On the one side users need to know about investment costs, legal framework, technical risks and many other aspects. On the other hand manufactures have to get an idea about the quantities of furnaces that could be sold in a certain output range. Therefore a study was carried out to evaluate the market potential of possible fuels. What type of residues can be used

APPROACH

In a first step relevant types of biogenic residues were identified. Based on their fuel properties and availability a first selection was made. Based on a literature research the theoretical and technical potentials of different residues were identified, also the legal framework in Germany was evaluated.

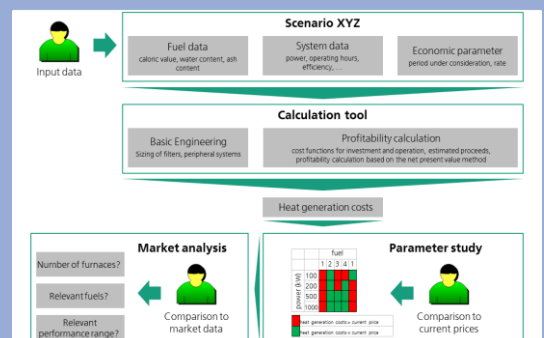
A market survey was performed to determine cost functions for furnaces, filters and other relevant components. Thus investment and operational costs can be determined flexibly for different output sizes.

An Excel-based calculation tool was created, which enables the user to size the furnace system and calculate the profitability for each scenario. The tool calculates the heat generation cost of each residue in order to compare it with relevant prices. Moreover it is possible to do automated parameter studies. It allows the user to vary any two parameters of the system and show the correlations in a matrix. This helps identifying beneficial investments and is also the base for the market analysis.

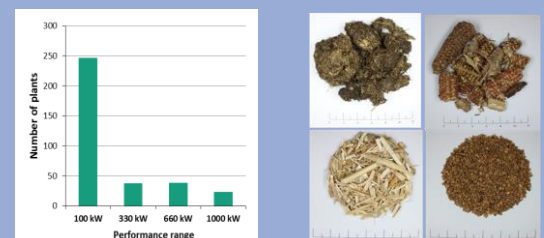
RESULTS

- Methodology was developed to evaluate the market potential of furnaces for biogenic residues in the range of less than 1MW.
- Comprehensive tool for technical and economical evaluation of the combustion of biogenic residues
- Market relevant data available for different fuels
- Identification of market relevant feedstocks and plant sizes
- Approaches to determine the market potential

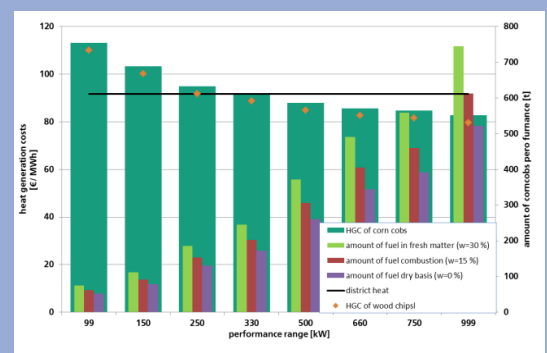
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Scheme of calculation tool



Possible results: Number of plants for mill-by products (left) and examples of examined fuels (right)



Heat generation costs of corncobs plant