

The area of industrial energy systems



Title of the work:

„Process analysis and Decarbonisation of the Cement manufacturing”

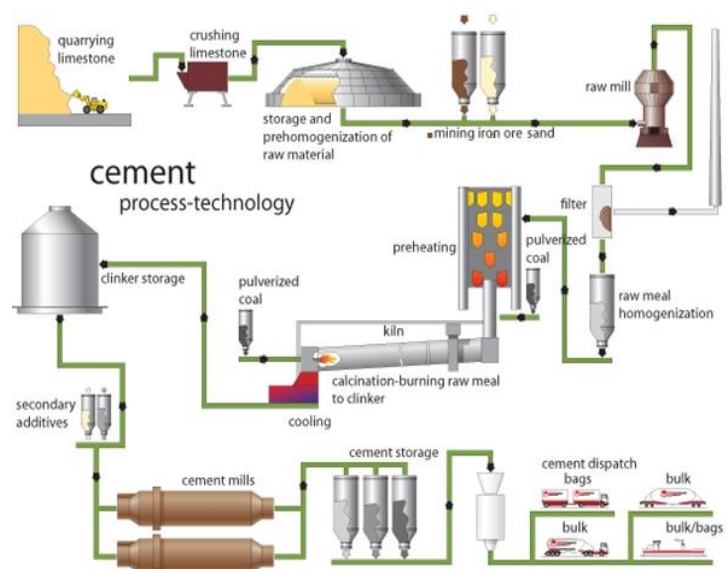
Background:

The New Energy for Industry (NEFI) model region is based on Austria's powerful industrial landscape, excellent infrastructure conditions, and the well-known innovation potential. NEFI will demonstrate the pathway for the decarbonisation of the manufacturing and energy-intensive industrial energy system to the use of up to 100% renewable energy supply for selected industrial sites.

One of the industrial sub-sectors considered by NEFI is the cement industry. This industry is important for both energy consumption and CO₂ emission levels. In Austria, cement production is the second-largest source of CO₂ emissions generated by the industrial production process itself. The main objective of this thesis in line with NEFI is to evaluate the decarbonisation pathways of the cement industry. First, a top-down approach is used to model the current production process and predict the annual energy consumption and CO₂ emission. In the following step, a bottom-up approach is used to evaluate and model the decarbonisation technology options. Finally, the decarbonisation pathways are analyzed using a developed simulation model.

Outline of the content covered in the work:

- Production process analysis
- Selected decarbonisation option analysis
- Development of suitable simulation model
- Documentation of the work



Conditions:

- Interest in energy networks
- Knowledge in programming