Energiepark Herzogenrath

To tackle the challenges of the energy transition, it is necessary to systematically identify and analyze potentials and dependencies within the energy network. The "Energiepark Herzogenrath" (EPH) project aims to establish a CO_2-neutral energy supply, implemented through a central energy management system that integrates local industrial enterprises. The goal is to position the project as a model for key questions of the energy transition and to implement innovative energy supply approaches in an exemplary manner.

In close collaboration with partners from industry and research, digital twins of the involved industrial enterprises are being developed, enabling a precise representation of urban energy demands. Using intelligent forecasting techniques, cross-sector coupling approaches, and decentralized renewable energy generation, a stable and efficient energy supply is to be established. A high degree of utilization will pave the way for a CO_2-neutral energy supply.

As part of the project, AMT, in cooperation with the AMR institute (Department of Mineral Processing Engineering), is constructing a physical and digital pilot plant for sand processing. Equipped with state-of-the-art sensor technology, the plant continuously collects energy and process data, defining essential parameters for the processing workflow. Its flexible design allows it to respond to the requirements of the local energy network, contributing to both stability and efficiency.

Additionally, the processing plant is integrated into Demand Site Management (DSM). During operation, the plant communicates real-time energy data with the central energy management system, adjusting its operations based on the current energy supply situation to actively stabilize the local grid. A comprehensive energy measurement system facilitates the generation and analysis of process data under varying load conditions. This data serves as a basis for developing new control variables, which are evaluated for their suitability in dynamic operation, ensuring that energy consumption is optimally aligned with grid conditions.