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Smart Building Meets Energy Transition: KATHARINENKAI as a Model for Grid-Serving Real Estate

Case Study: KATHARINENKAI, Hamburg

Floor: 10 000 m² | Year: 2022 | Type: Office | Owner: MOMENI Group

At the Nikolaifleet in the heart of Hamburg, the landmark building KATHARINENKAI was completed in March 2022, offering approximately 10 000 m² of gross floor area with a prime waterfront location. Designed by the architectural firm SKAI, this modern office property features flexible usage concepts and holds LEED Gold and WiredScore Gold certifications. The project was developed by the MOMENI Group, renowned for high-quality real estate projects with innovative use concepts.

Optimization of operating costs

Relief for the energy grid through load shifting

Buildings as thermal and electrical energy storage

Efficient energy management

Context

With KATHARINENKAI, a flagship project for grid-serving building operations was created. Thanks to an innovative smart building topology, all stakeholders are seamlessly integrated into the operation. The building utilizes dynamic electricity tariffs, enabling the use of aedifion demand side management. The control of energy procurement is fully automated and occurs in real time, ensuring that energy is drawn when it is available at a low cost on the grid.

Project Execution

Designed as a pioneering smart building, the KATHARINENKAI is equipped with modern sensors, as well as automation and energy management systems that can flexibly and intelligently respond to external influences.

To achieve this, all data points have been interconnected via a central platform to capture data in real time. The implemented building automation solution, combined with an energy management system, controls the individual systems and installations, allowing them to respond to external signals (e.g., electricity price signals, weather forecasts) to procure energy when prices are low or renewable energy is available. The data from various systems and sensors is processed and analyzed in real time, enabling dynamic decisions regarding energy consumption.

To fully leverage the potential of demand side management, the building is utilized as an energy storage solution to store excess energy. aedifion's intelligent cloud-based platform fully automates the monitoring, control, and optimization of the building's systems. This ensures that everything operates efficiently without manual intervention, thereby relieving the technical operations staff as well.

Factors for Success

- Sophisticated smart building topology
- Data hub for processing and further use of the collected data
- Seamless integration of all existing systems in the building
- Grid-serving operation of properties as part of the overall ESG strategy

Customer Feedback

"Thanks to aedifion's demand side management, we were able to enhance energy efficiency at the KATHARINENKAI while simultaneously reducing our operating costs. The automated control system optimally adapts to current conditions and alleviates the electricity grid—making it a truly sustainable solution that positions our asset as a pioneer in the energy system of tomorrow."

Tristan Holtkamp

Head of ESG | MOMENI Group