

ENERGY MANAGEMENT

Customer Success Story

GPEC Group

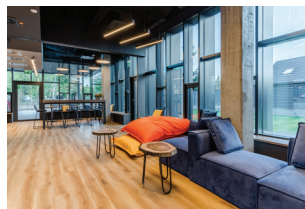
Gdańsk, Pomerania, Poland

Digital Transformation for District Energy Infrastructure

Headquartered in Gdańsk, Poland, GPEC Group is a dynamic energy and engineering company delivering sustainable heat and power solutions to hundreds of thousands of residents across the Pomorze region. GPEC plays a pivotal role in regional energy infrastructure, operating over 900 km of district heating pipelines across six cities, along with dozens of heat chambers and booster stations equipped with advanced telemetry.

As a multi-entity group including engineering, facility management, network construction, and renewable power generation divisions, GPEC delivers infrastructure services and energy projects throughout Poland.

The company is advancing energy efficiency through smart systems, photovoltaic farms, cogeneration, and small hydroelectric power, while managing innovation toward long-term sustainability and customer satisfaction. GPEC Group brings together deep industry experience, a modern mindset, and a commitment to leading the green transformation of urban energy systems in Poland.



Key Points

- **Unified real-time visualization, monitoring, and control of district heating networks through GENESIS, replacing fragmented legacy systems and enabling centralized operational management across multiple cities.**
- **Expanded historical data tracking from 1,500 to over 13,000 continuously updated variables providing the data foundation for advanced analytics, faster anomaly detection, and more informed operational decision-making.**
- **Established a modular, redundant system architecture with secure web access and dedicated analytics servers, enhancing reliability, strengthening cybersecurity, and enabling scalable growth across the network.**

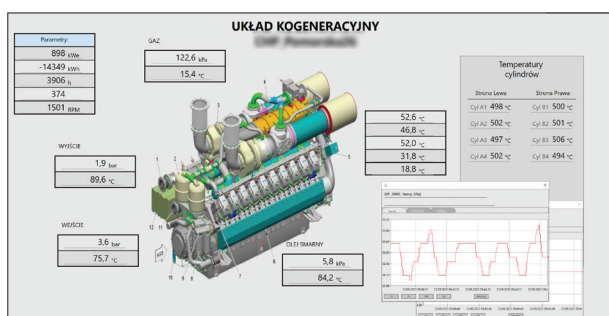
The Challenge

As the pace of technological advancement accelerated, GPEC identified an opportunity to modernize its systems. To stay ahead, the organization launched a comprehensive digital transformation initiative aimed at improving operational efficiency, enhancing data accessibility, and supporting long-term scalability.

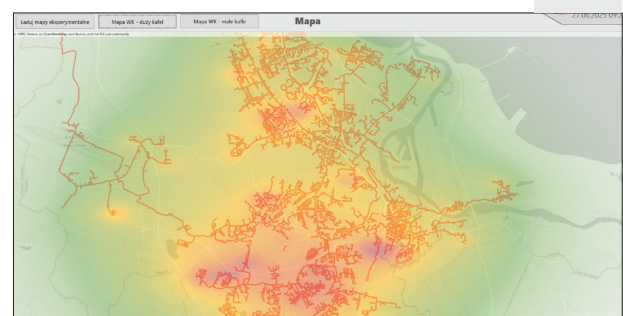
The Group needed an automation and digitalization platform that could unify existing systems, deliver intuitive access to critical information, and evolve in step with future technological progress.

To guide this transformation, GPEC outlined clear goals for its next-generation automation and digitalization platform:

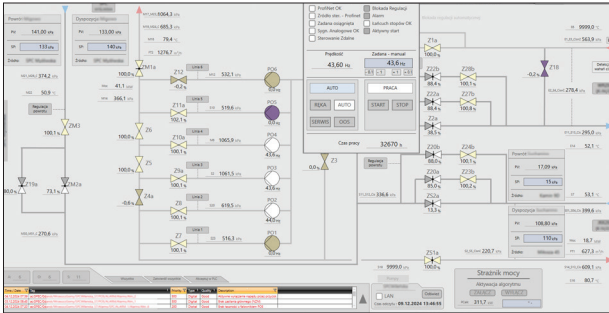
- Multi-monitor compatibility and cross-browser visualization
- Familiar window-style navigation for ease of use
- Secure, resilient system architecture with built-in redundancy
- Minimalist design with clean synoptic maps that highlight deviations
- Quick trend access and configurable alarm thresholds per measurement
- Consistent synoptic chart access across desktop and browser environments



3D Cogeneration System



Heat Map



Process Overview

Supporting AI integrations and data from closed systems required an expanded integration environment. GENESIS automation and digitalization software was deployed to handle an additional 230,000 historical variables while enabling structured integration of AI algorithms.

The decision to deploy GENESIS was reinforced by its existing presence within the organization. Extending the platform as a dedicated integration layer provided architectural continuity, reduced integration complexity, and supported scalable innovation within a familiar and proven framework.

The Solution

- GENESIS

The Results

GPEC realized substantial benefits following the deployment of GENESIS. The system architecture was built around four core instances of the platform:

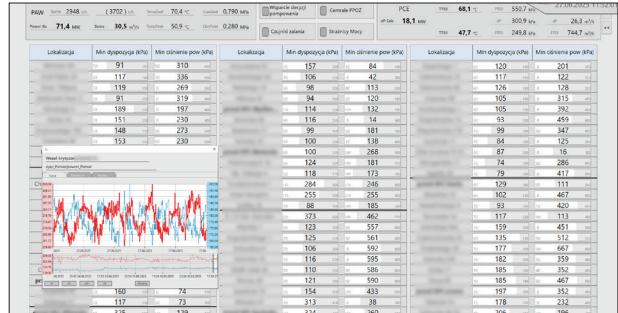
- A primary instance for the main district heating network
- A secondary instance for peripheral city networks
- An application server for secure web access
- A computing server dedicated to AI-powered analytics

This modular architecture delivers:

- High reliability and built-in redundancy for uninterrupted operations
- Robust security through network separation and strict access controls
- Scalable performance to support future system growth and complexity

The implementation began with approximately 15,000 monitored variables, including 1,500 historical data points. Just three years later, the system now manages over 100,000 variables—13,000 of which are historical and continuously updated in real time.

The new system has dramatically improved operational visibility, responsiveness, and data accessibility across the company's district heating network. Designed for flexibility, the system enables seamless data flow across departments, supporting both daily operations and long-term strategic planning.



Energy Readings

Realized operational impact:

- Increased situational awareness for operators and engineers through intuitive dashboards and real-time alerts
- Accelerated anomaly detection using simple, customizable alarm thresholds
- Enhanced analytics to support more confident, data-driven decisions
- Streamlined integration with internal systems via database connectors, web services, and file-based exchanges
- Strengthened cybersecurity and compliance through strict access management
- Accelerated internal upskilling, enabling GPEC's technical team to independently expand and maintain the system

These benefits not only enhance daily operations but also help GPEC Group confidently adapt to market changes and deliver more efficient, reliable, and sustainable heating services for customers across Poland.

Conclusion

With the implementation of GENESIS, GPEC Group successfully modernized its automation and digitalization infrastructure, achieving greater efficiency, visibility, and adaptability.

The flexibility of the platform, combined with GPEC's growing internal expertise, ensures that the system will continue evolving to meet future challenges. As cities pursue greener, more intelligent energy solutions, GPEC Group is leading the way—armed with a future-ready digital foundation.

“GENESIS provided us with a scalable SCADA environment with universal access and seamless integration with our systems.”

Aleksandra Żurawska – Automation Department Manager

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