



# Sustainable. Efficient. Green.

Sustainable energy solutions for  
cost efficiency – made today with  
a vision for tomorrow.

## Energy cost reduction



Smart management of loads, automatically executed according to the schedule and user preferences. Savings are generated not only in network charges and energy costs, but also by reducing equipment stress and consequently maintenance costs.

## At-a-glance overview

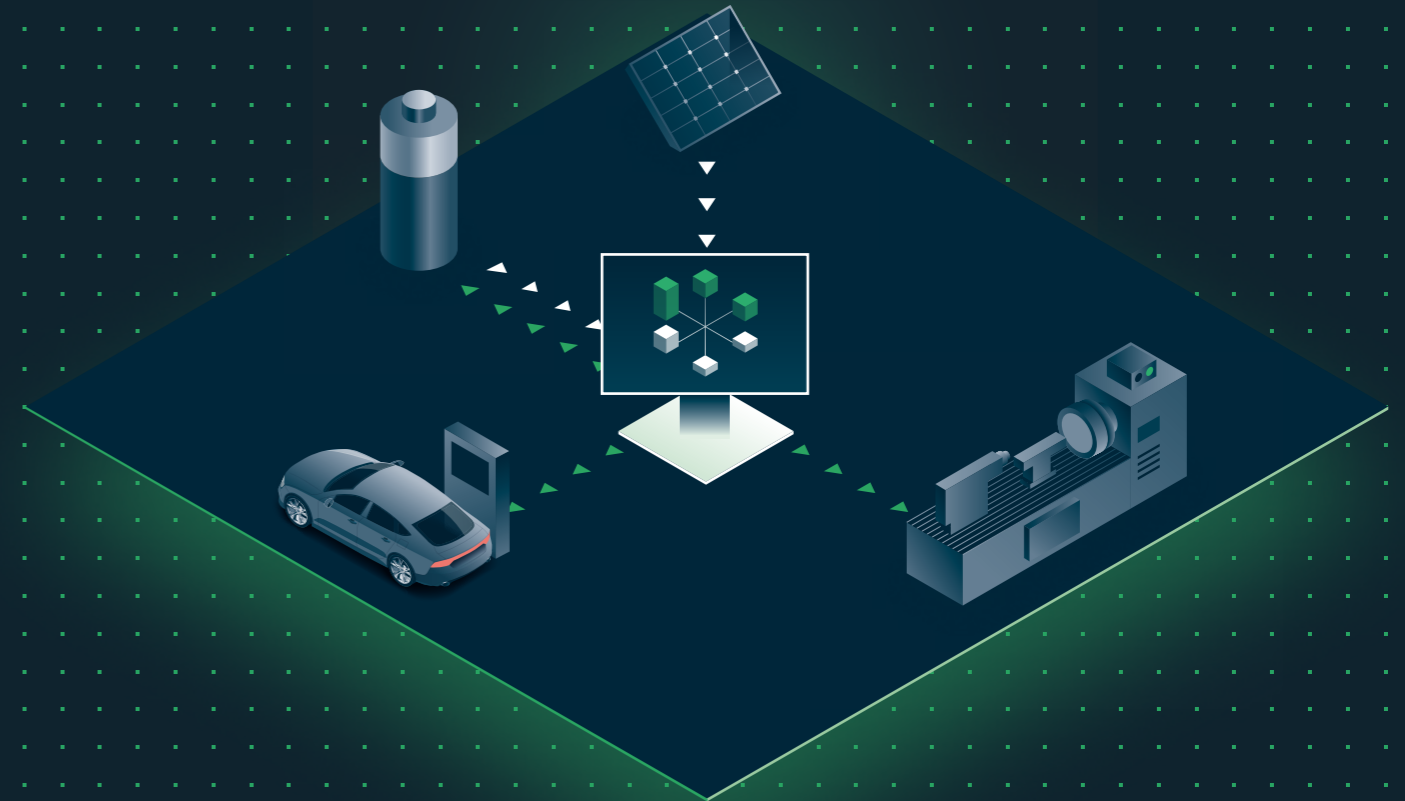


Monitor any energy source, carrier, flow, and load using a modern user interface. Leverage hidden insight to better manage energy with smart alarms and custom KPIs, which can be auto-exported for ISO 50001 compliance and comprehensive ESG reporting.

## Modular turnkey solutions



System modularity allows us to solve multiple challenges inside one solution. The solution can be fully adapted to the needs of a particular production environment with additional functionalities. We offer consulting, training, and maintenance during and after implementation.

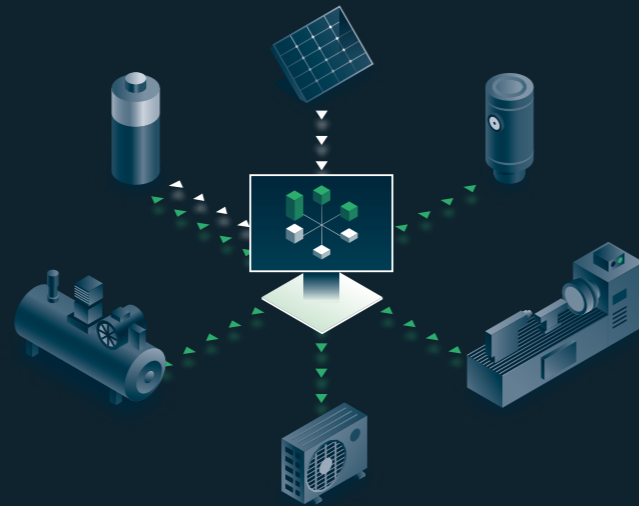


# INGENIOUS FLEX

## industrial demand response EMS

By adapting the power draw of manufacturing equipment, their energy consumption is optimised to reduce costs without sacrificing productivity.

Each prosumer and potential production source is treated as a separate user in the system. Mutual adaptation of machines in separate processes allows energy consumption to be optimised based on all available information and the use of flexibility sources that may not be immediately apparent.



### Predictable costs in unpredictable times

Multi-rate and dynamic tariff systems dictate changes in energy prices multiple times within the same working cycle. Without an intelligent management system, the electricity cost would be left to chance. inGenious Flex allocates energy consumption based on financial criteria, ensuring seamless business processes, predictable energy consumption, and passive savings.

### Complete control without manual operation

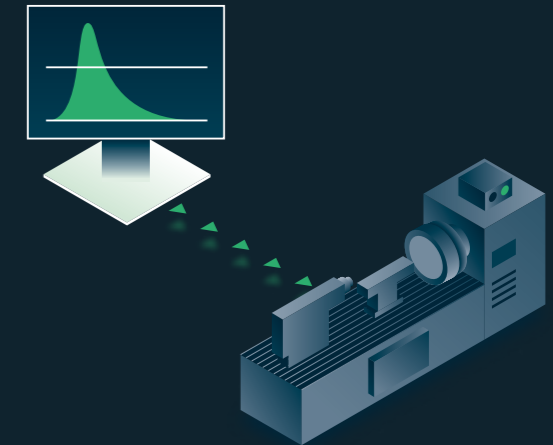
Based on user constraints linked to working hours, productivity, and the specifics of each production process, the system creates an operating schedule for each device. During the automatic execution of the schedule, the human supervisor is continuously informed and can monitor all energy flows. This allows them to take control of the operation at any time and manually make adjustments, which the rest of the system adapts to automatically.

# INGENIOUS PEAK

## industrial peak levelling system

The system is intended for all industrial and other electricity consumers who, due to uneven power draw, incur high costs for peak power.

inGenious Peak evens out the peaks and consequently reduces strain on the delivery systems. Controlling energy-intensive processes with an optimised method of this kind improves the power draw profile, generating additional savings without major investments.



### Harnessing the potential of large loads

The largest loads can generate the greatest savings in electricity costs, as even a slight adjustment to their operation can reduce power draw below peak levels, where the energy cost is much lower. Through intelligent time adaptation of loads to a specific schedule, the system ensures that, despite lower consumption, manufacturing productivity remains stable or even increases.

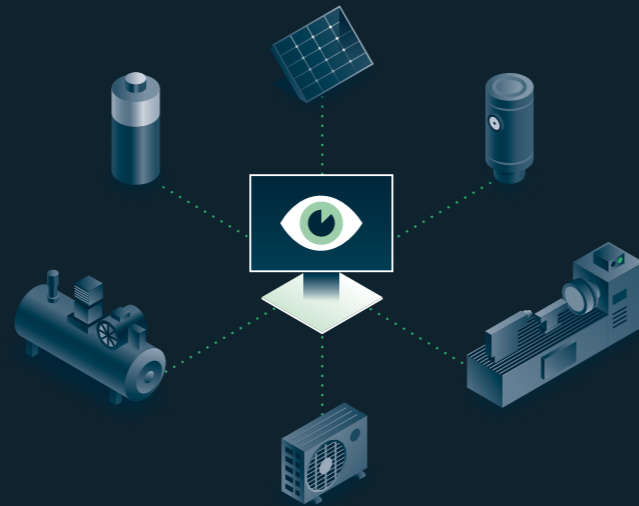
### For light and heavy industry

Although inGenious Peak is most suitable for companies with large loads, such as furnaces or centrifuges, the benefits of peak reduction are evident at any production scale. By upgrading to inGenious Flex, the system can simultaneously manage any number of loads of any size through central management and control.

## user-centric energy monitoring

An intelligent energy information system with a modern user interface that can monitor all types of energy sources and flows.

It provides insight into hidden information for more efficient energy management through custom indicators and smart alarms. For advanced energy accounting, detailed analyses and automatic report generation are available for any time frame.



### All information in one place

Due to an open-source and transparent interface, inGenious View can connect controllers, meters, and other telemetry devices, regardless of the values they measure. It consolidates electricity, heat, and time consumption from different devices and locations into a user-customized dashboard, revealing insights into the deepest complexities of the system.

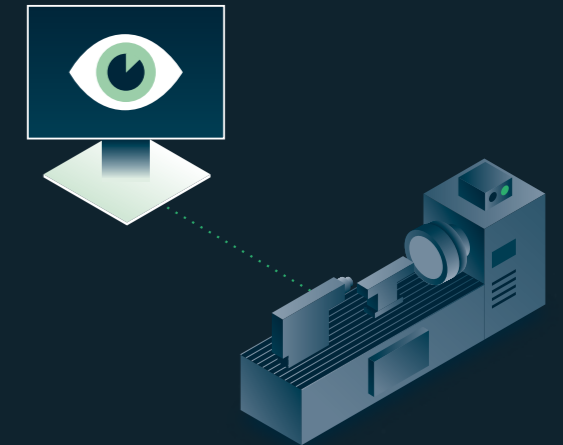
### Modular design and remote access

Designed for the complete customization of a wide array of needs. On a local server or in the cloud, integrated with control systems, and operated by multiple users on their own devices, the system fits any environment. The web-based design is particularly suitable for companies with dispersed resources and units, as the data is edge-collected and securely accessible through any internet-connected device.

## energy management of individual devices

Connection to and insight into any production device allows control and management where they did not exist before.

A simple user interface reveals information about the system and allows the user to control the device and conduct a detailed analysis of its operation.



### Integration with flexibility systems

inGenious Cube can connect to a local or remote flexibility management system and contribute the flexibility of the controlled device. This way, each device can be part of comprehensive energy management without the need for manual signal readings, separate meters, or parallel use of another control system.

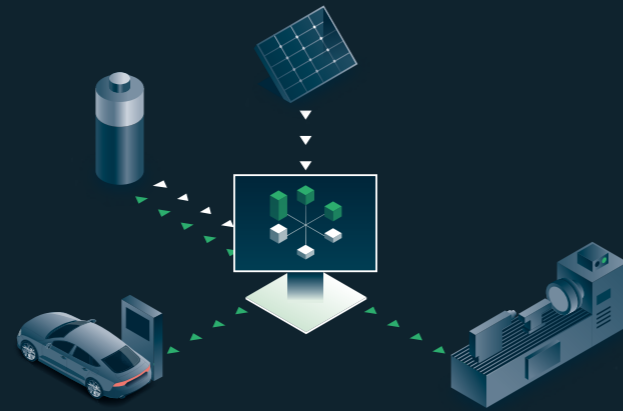
### Modern control of legacy machines

Some legacy devices and machinery are not compatible with modern control systems, even though they are an indispensable part of production in some cases. To avoid expensive and unnecessary investments in new production equipment, inGenious Cube can take control of devices with a wide range of protocols, connectors, signals, and custom drivers.

## local RES and battery management

A central coordination system between local RES, the battery storage system, and the metering point. It monitors energy flows in real time and predicts on-site generation using historical and weather data.

Doing so increases the on-site utilisation of locally generated energy, which directly improves the economic efficiency of both new and existing solar power plants, wind turbines, biogas engines, cogeneration units, and other local RES.



### Faster return on solar investment

Industrial solar plants often generate insufficient or even negative returns depending on market conditions. As the power of a solar power plant alone can be unstable enough to not cover a single large load, their impact on the final energy bill ends up insignificant compared to the investment needed. Returns can be stabilised and increased by optimising network charges or executing energy arbitrage, which speeds up the ROI by several years.

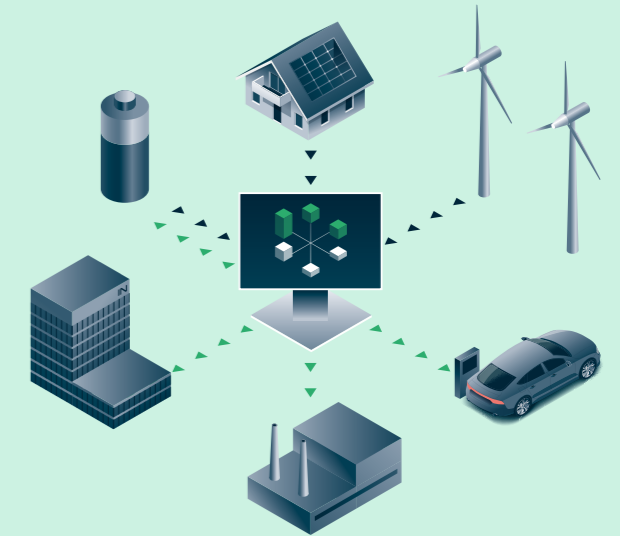
### Contracted power optimisation

Where contracted power is negotiated based on peak demand, having an on-site battery installation can mitigate unexpected peaks. inGenious Link automatically sets the optimal limits for power draw in each time-of-use period. It uses the patterns in energy flow to best operate the battery over time. This prolongs its lifespan by reducing charging cycles and finds a price-focused optimum.

## grid-level energy flexibility trading

Maintains a balance between consumption and production through the exchange of energy flexibilities at the grid level, both for local commercial and distribution or national transmission grids.

By connecting multiple distributed resources on different locations and owned by separated entities, it offers users profitable participation without sacrificing comfort.



### Managing an energy community

inGenious Grid acts as an orchestrator between several flexible local EMS, handling them each as a single resource. This lets members of commercial parks and residential communities harness each other's flexibility. By automatically matching flexibility requests and offers, it satisfies one user's demand for energy with the available supply from another, bypassing the need to purchase energy from the market.

### Investing into shared resources

A group of users can benefit from each other's resources, increasing their utilisation and shortening the return-on-investment period of the shared resources. Instead of being subjected to volatile market prices, users can generate savings by using communal resources. Participation can be incentivised by lowering distribution costs on a contractual basis or by organising an internal market, trading flexibilities with each other.

## Success story 1

### Microgrid flexibility cuts peaks and costs

#### ● Challenge

○ A Nicosia campus of the University of Cyprus, operating as a microgrid with on-site generation and diverse loads, experienced demand swings driven by with term times and timetables. They aimed to cut energy costs without affecting comfort or operations.

#### ○ Solution

● We layered inGenious Flex over the existing EMS. The system manages energy flexibility across the microgrid, including solar plant, battery storage, and controllable loads (HVAC and lighting). It treats individual buildings and departments as distinct prosumer types and uses forecast- and cost-based optimisation to generate and dispatch flexibility.

#### ○ Impact

● The flexibility approach enabled load shifting to low-cost periods, higher self-consumption of on-site renewables, and reduced exposure to peak demand charges. This reduced term-time swings without impacting comfort. Integrated monitoring provided a microgrid overview, analytics of historical data, tariff-based adaptations, and investment-planning optimisation.

## Success story 2

### Maximising savings with PV and battery storage

#### ● Challenge

○ Miheu, a thermal and mechanical metal-processing company, has interdependent loads running 24/7. Despite predictable production, demand peaks exceed the contracted power. The site has a solar plant that whose generation fluctuates with unpredictable weather. Without storage and a management system, they could not take full advantage of on-site energy sources.

#### ○ Solution

● We installed a 183 kWh battery storage and integrated it with inGenious Link. The system coordinates the solar plant, battery storage, and site demand. It forecasts peaks using historical data analysis. Based on these forecasts, it discharges the battery during expected peaks. This reduces net power draw from the grid and lowers the contracted power component of the network charge.

#### ○ Impact

● By levelling peaks, inGenious Link enabled an 18% reduction in contracted power in the most expensive time-of-use period. Network charges fell by 20–25%, without impacting production. Locally generated energy use was maximised, reducing dependence on expensive grid energy.

## Success story 3

### Cold chain centralised monitoring and digitisation

#### ● Challenge

○ Pomurske mlekarne faced rejected dairy batches and excess production costs due to inadequate control of cold-chain temperatures, energy use, and milk-intake volumes. They needed measurements that would enable comprehensive monitoring of all energy carriers at two production sites.

#### ○ Solution

● inGenious View, deployed at two locations, measures temperature and electricity, retrieves hourly natural-gas consumption from the TSO, and monitors compressed-air system efficiency. During milk transfer from tankers to storage, it measures flows and automatically generates post-intake invoicing reports. The team configured dashboards, indicators, alarms, and report schedules. The modular design supports expansion to additional sites within a single, hierarchical view.

#### ○ Impact

● Automated cold-chain temperature monitoring improved dairy quality, eliminated batch rejections, and improved the company's reputation. Automated milk intake cut manual work and delays, sped up the intake process, and standardised records. Cooling consumption monitoring reduced energy costs, while automated reports ensured accurate production data.

## Success story 4

### Energy monitoring enabled environmental certification

#### ● Challenge

○ To obtain the Green Key ecolabel, Le Méridien Lav hotel needed comprehensive energy monitoring and reporting on targets and continuous improvement for energy, heat, and water. The appointed EMS provider required trusted, standardised site data, but the existing system did not provide an integrated view.

#### ○ Solution

● We integrated inGenious View with the hotel's existing network across the entire complex and installed 90 meters (electricity, ultrasonic calorimeters, ultrasonic flow meters). Dashboards show real-time data with trends, alarms, and role-based access. The platform includes redundancy and automated backups. A local API publishes zone-level and cumulative data hourly, supporting ISO 50001 and ESG reporting. The project included initial staff training and remote maintenance.

#### ○ Impact

● The hotel gained a complete, zone-level view of electricity, heat, and water consumption, enabling targeted load reduction, measurable cost control, and baseline metrics aligned with the Green Key criteria. This accelerated the pathway to accreditation. The architecture allows an upgrade to smart control of the existing solar plant and battery storage, which would further lower energy cost.

## Success story 5

### Lower network charges with peak shaving

#### ● Challenge

○ Cimosa Vuzenica foundry, with electric arc furnaces totalling 8.5 MW, has demand that varies with production. Short, unpredictable peaks occurred when furnaces ran simultaneously. While these peaks were usually confined to a single 15-minute interval, they significantly increased network charges, which are based on peak averages.

#### ○ Solution

● We integrated inGenious Peak to dynamically manage variable and static loads. The system monitors total demand within each 15-minute interval and forecasts when it will exceed a limit set from a cost-optimal demand profile. If an exceedance is forecast before the end of the interval (e.g. furnace start-up peaks) it temporarily reduces or disconnects lower-priority loads, then automatically restores them once the peak passes.

#### ○ Impact

● The foundry achieved up to a 31% reduction in contracted power in the most expensive time-of-use period, with only 1–3 interventions per day. Automated peak levelling reduced stress on the grid. Using historical data, inGenious Peak identifies patterns and alerts operators, who can then take preventive actions to further reduce power fluctuations.

## Success story 6

### Relieving grid congestion with energy flexibility

#### ● Challenge

○ The island of Grytøya is supplied by a subsea electricity cable operating at full capacity, forcing the distribution system operator (DSO) to reject new user connection applications. Several energy-intensive users relied on diesel generators, degrading local air quality. Planned electrified transport would further strain the network without additional capacity.

#### ○ Solution

● We deployed inGenious Grid to manage grid congestion through coordinated energy flexibility. The platform delivers island-wide energy management, integrating flexibility from fish farms, small local industry, electric vehicles, and other local RES. The electric ferry linking the island to the mainland also serves as a flexible battery storage asset. Forecast-driven, cost-optimising algorithms dispatch flexibility, where and when it is needed most.

#### ○ Impact

● DSO was able to defer a costly subsea-cable upgrade by several years through island-wide flexibility. Reliable supply was restored for all users. By coordinating local resources and new RES, the system unlocked capacity for new users without major infrastructure works, improving long-term grid infrastructure investment planning.

# INEA

Give me a lever and a place  
to stand and I will move  
the earth.

— Archimedes