

THE JENBACHER SOLUTION

JENBACHER
INNIO



THE JENBACHER APPROACH

Engines as dispatchable DERs

Gensets for stability, efficiency

Microgrids not only ensure continuous operation during grid outages, but also stabilize the utility grid, reducing outage risk

By incorporating gas gensets, microgrids achieve environmental targets without compromising resilience

Yielding up to 47% and more electrical efficiency and up to 95% total efficiency in cogeneration mode, which can save 40% and more of primary energy versus conventional concepts

Hydrogen-ready power generation

With 50 years of experience in that field, INNIO is an early pioneer in hydrogen-rich gases

All new Jenbacher engines are "Ready for H₂"

Furthermore, models can be offered with the option to operate with up to 25% (vol) H₂ in the pipeline gas. Type 4 engines are offered for 100% H₂ operation.

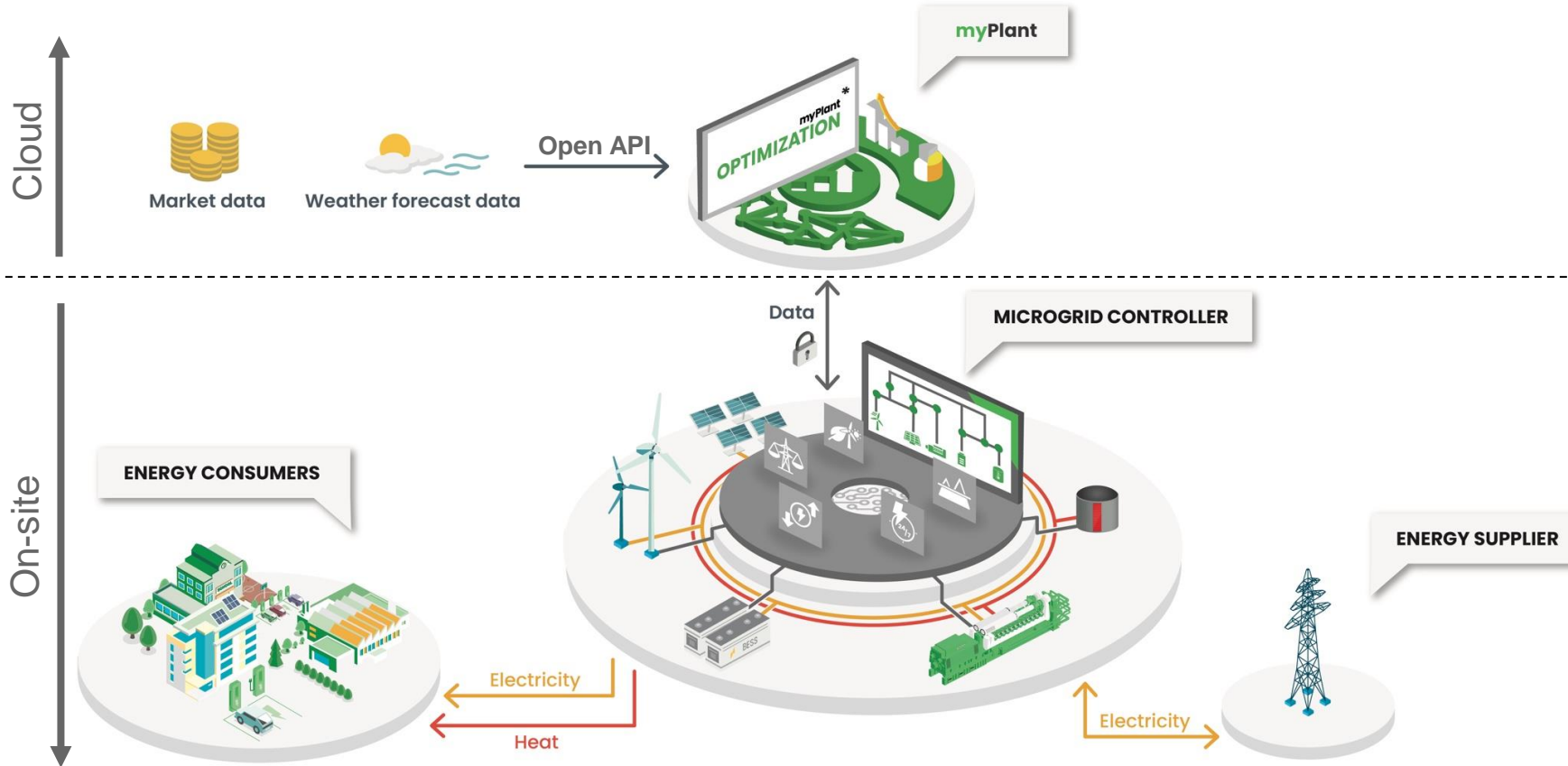
From 2025 onwards INNIO's entire Jenbacher product line is expected to be rolled out for 100% hydrogen operation.



THE JENBACHER APPROACH

Controls and digital solutions for microgrids

The microgrid controller and myPlant Optimization ecosystem



myPlant Optimization

- Artificial Intelligence (AI)–based energy management solution
- Precisely understands a plant’s operational requirements
- Improves operational efficiency and overall balance sheet

Microgrid controller

- Acting as the brain of the microgrid
- Optimized for our Jenbacher energy solutions
- Integrating a wide selection of distributed energy resources (DERs) such as renewables and storage devices while ensuring high reliability and plant uptime
- Maintaining frequency and voltage for any given load in island mode for maximum resilience
- Black start capable in case of outage

THE MICROGRID CONTROLLER

Resilience in all operating conditions

Coordination from a centralized control system to manage the combination of renewable sources, electrical storage units, and Jenbacher engines most effectively.

Jenbacher microgrid controller is an extension of our Jenbacher master control system

Located on site

Maintaining the stability of the microgrid including the DERs and loads in all operation conditions

Connecting all DERs physically through various supported bus protocols

Maximum flexibility

Up to 50 DERs can be connected and configured to fit plant-specifics:

Jenbacher and also (existing) third-party gensets or combined heat and power plants

PV, wind or hydro power

Electric storage systems such as BESS, ultra capacitors, and kinetic energy

Power-to-X (e.g. Power-to-Heat and Power-to-Gas)

Backup diesel generators

Other asset types based on specific requests

MICROGRID CONTROLLER

Evolution of Jenbacher Plant Controls

Master SY

- Synchronization and control of circuit breakers
- Grid Decoupling (uninterrupted island mode)
- Interlock of modules of black out start
- Manual demand of engines for island mode



Master Control

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- Automatic demand of modules (island & grid //)
- Power setpoint (import export control)
- Plant control – priority current, heat, gas, ...
- Auxiliary controls
- Load management (feeder control)

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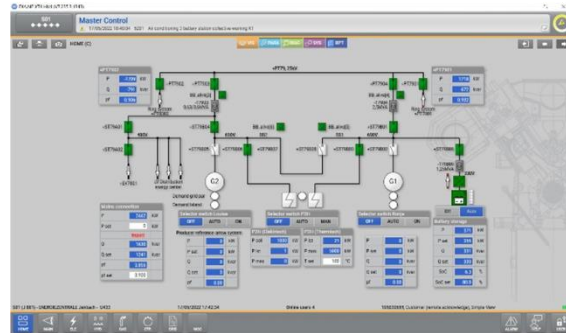
SW add-on

- Renewable & Storage integration
- Save and reliable operation of all assets for increasing availability & stability
- Storage management
- Active & Reactive load sharing based on speed/voltage droop

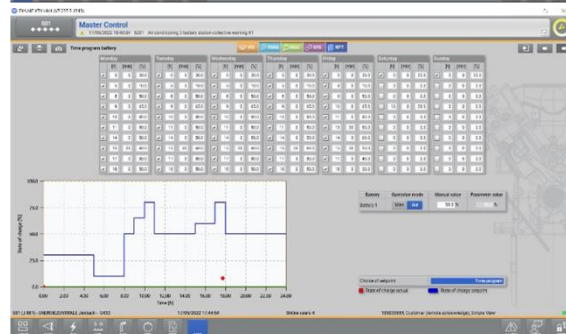
MICROGRID CONTROLLER

User Interface

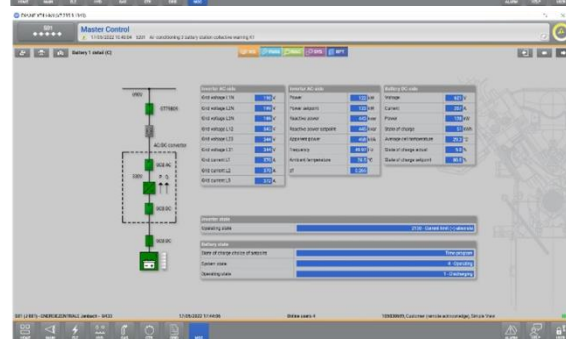
Main microgrid overview
Single line diagram at a glance



State of charge (SOC)
Detailed in automatic or custom mode, optimized to the plant's load profile to ensure the BESS has power available when needed



Distributed energy resources (DERs) asset
Provides comprehensive information about performance and status of storage systems or renewable energy systems like PV or wind



myPlant OPTIMIZATION

Tailored optimization for the power plant: greater success through intelligent optimization

myPlant is INNIO's proprietary digital platform

Our energy management solution based on myPlant increases resilience and improves your overall balance sheet

It continuously optimizes your processes based on operational and economic targets

It takes current funding guidelines into account



Your added value:

Proven

More than 10,000 engines already connected to myPlant

Integrated

Optimization of the entire plant

Tailored

Modular solution entirely geared to your individual needs

Profitable

Optimized plant operations increase your overall operational profitability

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