

Whitepaper Qien

Contents

1. Qien and the Cloud Energy Optimizer	3
2. The Basics	4
3. Paris 2050	5
4. GACS	6
5. Architecture.....	7
6. Implementation.....	8
7. Future: Qien EMS.....	9
8. Credentials.....	10

1. Qien and the Cloud Energy Optimizer [CEO] cloud connector

Qien is a trade name of the Dutch tech organization: Cloud Energy Optimizer B.V. and The Cloud Energy Optimizer (CEO) refers to interface via the cloud connector of Qien.

Our CEO is a shell over your existing building management system that greatly reduces energy consumption in your building. The system allows you to get a grip on the erratic weather influences and changing conditions in your building. This not only saves you energy, but also provides you with more comfort.

Qien predicts the energy demand of the building and uses the various energy sources as efficiently as possible. Think of the gas boiler, heat pump and heat and cold storage. Of course, these can also be other forms of energy generation. The self-learning software combines all kinds of information flows to predict the needs of the users in a building. Based on this, the most sustainable and cheapest energy source is used proactively.

If we know the heat or cold demand of a building for the coming period, we can plan which energy source we should use. Qien ensures that the distribution of sustainable energy is continuously optimized.

Supply and demand are matched with the most up-to-date prices for gas and electricity. Every hour there is a new forecast. Your building is continuously monitored. Is there anything different? Then immediate action is taken. This way, your comfort remains protected.

With this innovation, you get long-lasting comfort at the lowest possible cost! In the event of paying the project costs in instalments over the first 30 months, an installation can be cash positive from the first month.

The implementation of the project is always realized in consultation and cooperation with your current technical service provider.



2. The Basics

Buildings use about 40% of the world's energy needs. In a world where our energy is generated sustainably, the need will have to adapt to the yield. Energy prices are the result of supply and demand and will therefore react accordingly. In addition, building owners have to deal with government tasks that aim for gas-free buildings, reduced consumption (Paris 2050), but also a need for additional charging stations.

The rapidly changing world!

- requires an adaptive building
- changing energy prices
- responding to Weather Forecast
- no gas, heat pump, ATES and district heating Solar panels
- energy storage Building as a thermal battery
- higher requirements Comfort & Air Quality
- congestion management
- electric cars



3. Paris 2050







The current generation of building users expects a pleasant and healthy indoor climate with the lowest possible ecological footprint. The Netherlands has the ambition to achieve the objectives of the Paris climate agreement. For each sector, the average energy consumption at the moment was examined. For example, a hospital obviously needs more energy than an office. Based on this, new regulations are in force and the ambition is to make buildings Paris-proof by 2050.

<u>Office Spaces:</u>	
-Currently average	: 223 kWh per m2
>> Paris proof in 2050	: 70 kWh per m2
<u>Education Spaces:</u>	
-Currently average	: 175 kWh per m2
-Primary and secondary education	
>> Paris proof in 2050	: 60 kWh per m2
-HBO and universities	
>> Paris proof in 2050	: 70 kWh per m2
<u>Retail Spaces:</u>	
-Shop with refrigeration, currently average	: 453 kWh per m2
>> Paris proof 2050	: 150 kWh per m2
-Shop without refrigeration, currently average	: 252 kWh per m2
>> Paris proof 2050	: 80 kWh per m2
<u>Care Spaces:</u>	
-Hospital, currently average	: 278 kWh per m2
>> Paris proof 2050	: 80 kWh per m2

4. GACS

Outlined below is the classification to which Qien belongs. Qien is a member of the GACS Working Group of Techniek Nederland, TVVL and FHI that is working on an interpretation document of the NEN-ENISO 52120-1:2022. This document should give installers more guidance on design, planning, advice and engineering activities in the field of building automation and control for both new and existing buildings.

Note: **to be eligible for energy saving certificates (CEE), your BMS must meet class A or B standards.**

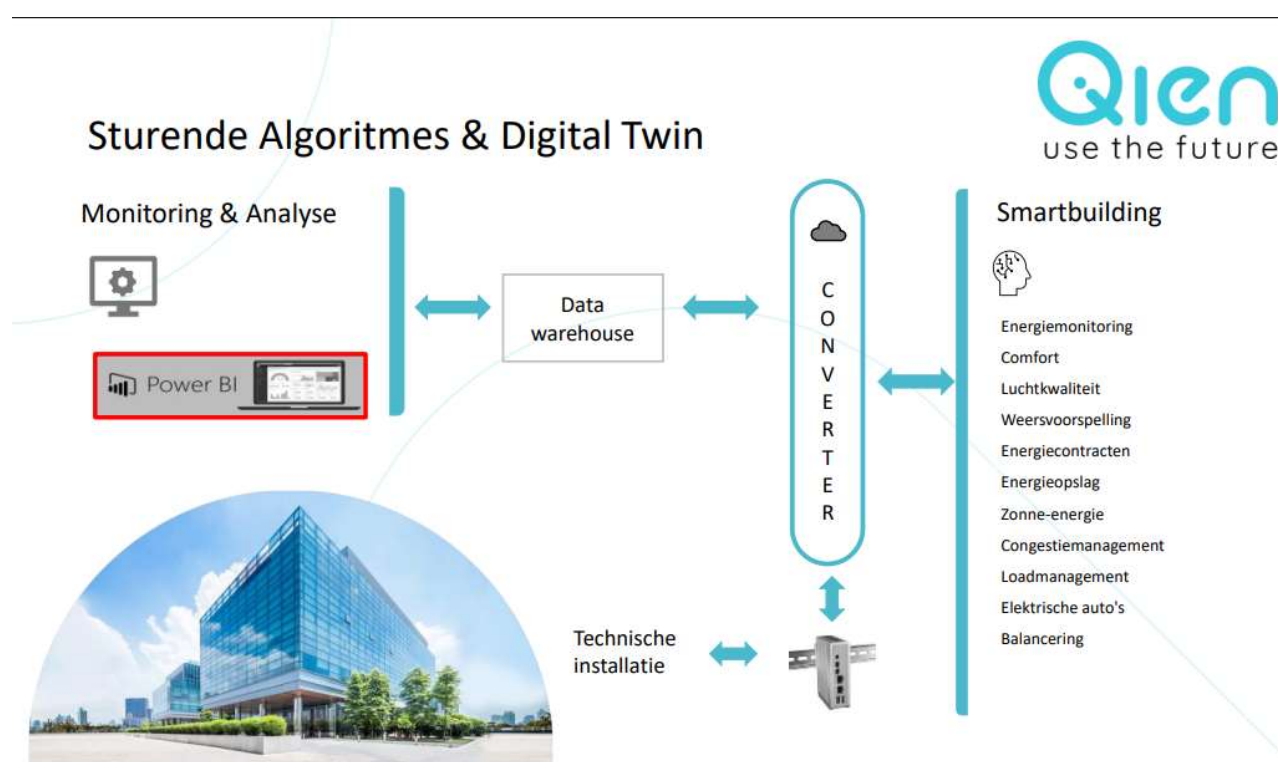
Class	Energy Efficiency
 	<p>Corresponds to advanced BMS/GACS with high energy performance control system</p> <ul style="list-style-type: none"> • Room automation with automatic demand control, connected to a network • Planned maintenance, fault diagnosis functions Q2 2025 • Energy monitoring • Renewable energy optimization
 	<p>Corresponds to advanced BMS/GACS and some specific energy-performing control functions</p> <ul style="list-style-type: none"> • Room automation without automatic demand control, connected to a network • Fault/alarm messages • Energy monitoring
	<p>Corresponds to standard control system</p> <ul style="list-style-type: none"> • Building automation of primary installations with BMS/GACS • Local room automation, no link to primary installations • Energy monitoring
	<p>Corresponds to non-energy efficient control system</p> <ul style="list-style-type: none"> • Building automation functions without network • No electronic room automation • No energy monitoring <p>Buildings with such systems need to be adapted. New buildings should not be equipped with a proper system.</p>

SOURCE: Interpretation document of the NEN-EN-ISO52120-1:2022, compiled by the EPBD-GACS working group, a collaboration between Techniek Nederland BV., TVVL and FHI. Provided that the installation and the associated BMS is equipped on a room basis, the CEO of Qien is able to optimize per room.

5. Architecture

A Cloud Connector is connected to the existing building management system (BMS) in the control box that retrieves the data from the BMS every 5 minutes.

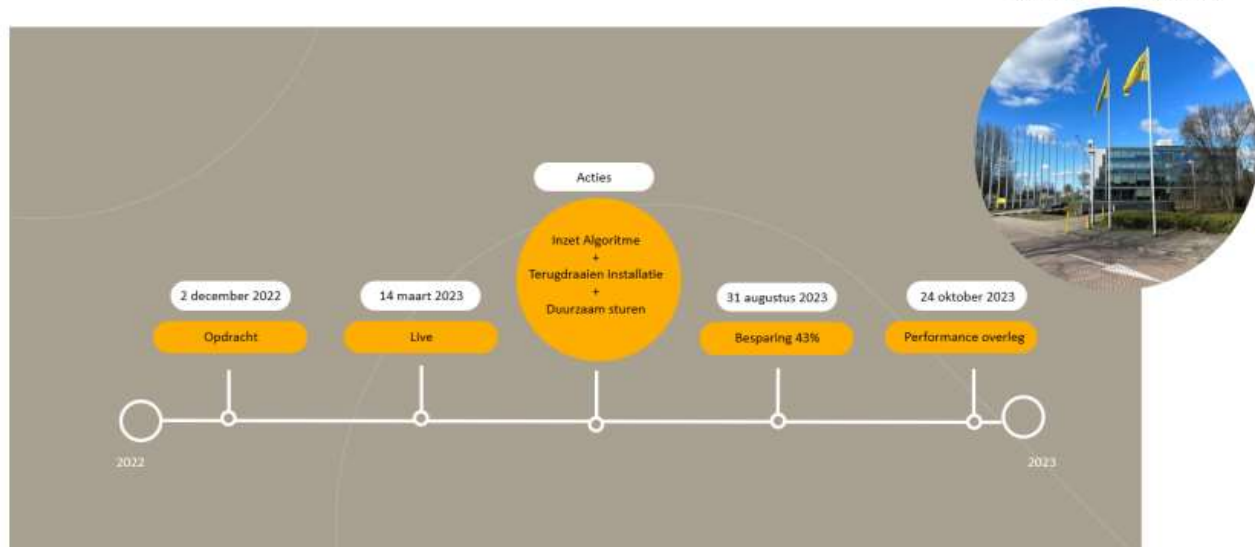
The converter makes the data suitable for the Qien system that is built on Cloud Solutions with advanced AI integrations and the latest technology of storage management, among other things. This document database can be consulted by the customer with, for example, Microsoft Power BI or any another reporting tool.



6. Implementation

Project progress Stedin Nijverheidsweg Utrecht, Netherlands

Project verloop Stedin Nijverheidsweg Utrecht



7. Future: Qien EMS

Qien EMS directs desired energy flows based on:

1. Contracted capacity connection
2. Climate restrictions of the building via Qien
3. Energy prices
4. Commercial Energy Strategy in the various imbalance markets
5. Charging requirements
6. Congestion strategy business park
7. Qien EMS communicates with other EMS systems via open protocol



8. References

Deze relaties gingen u voor

