POWERED BY PURPOSE

THE SOLUTION FOR GRID CONGESTION

A Microgrid from Pon Power is a reliable, self-contained power supply, so your company can continue to run, wherever you are located.

In more and more areas across the Netherlands, there is insufficient power transmission capacity. In those areas, there is a power shortage, new power connections may not be possible, and green energy cannot, or can only partially, be returned to the electricity grid.

This grid congestion problem will continue to increase for the time being, because strengthening and expanding the grid will take many years and the demand for electricity continues to grow. Until then, how can we solve the grid congestion as sustainable as possible?

Cat Microgrids offer a solution. Microgrids are stand-alone power grids that use existing components, including gas engines, solar panels, emergency power systems and energy storage devices. Pon Power designs and installs your microgrid and arranges the commissioning thereof. You can also contact us for maintenance and insurance.

"MICROGRIDS ARE A GOOD AND SUSTAINABLE SOLUTION FOR THE CURRENT GRID CONGESTION"

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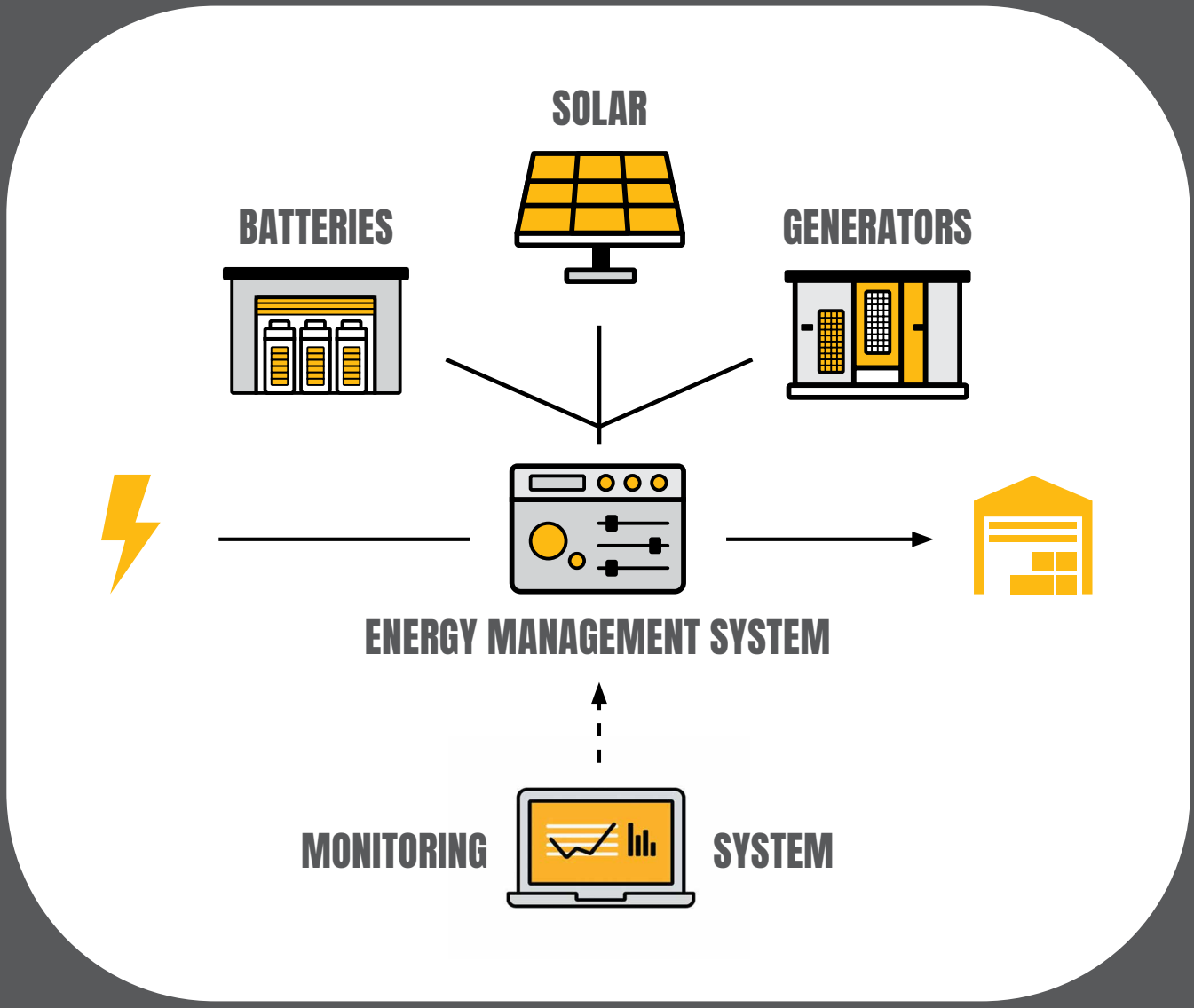


THE SOLUTION FOR GRID CONGESTION

Microgrids are a good and sustainable solution for the current grid congestion, because they are stand-alone power grids into which local, sustainable energy sources are integrated. A microgrid is, as it were, a mini version of the regular electricity grid, but can still be connected to that grid if necessary or desired.

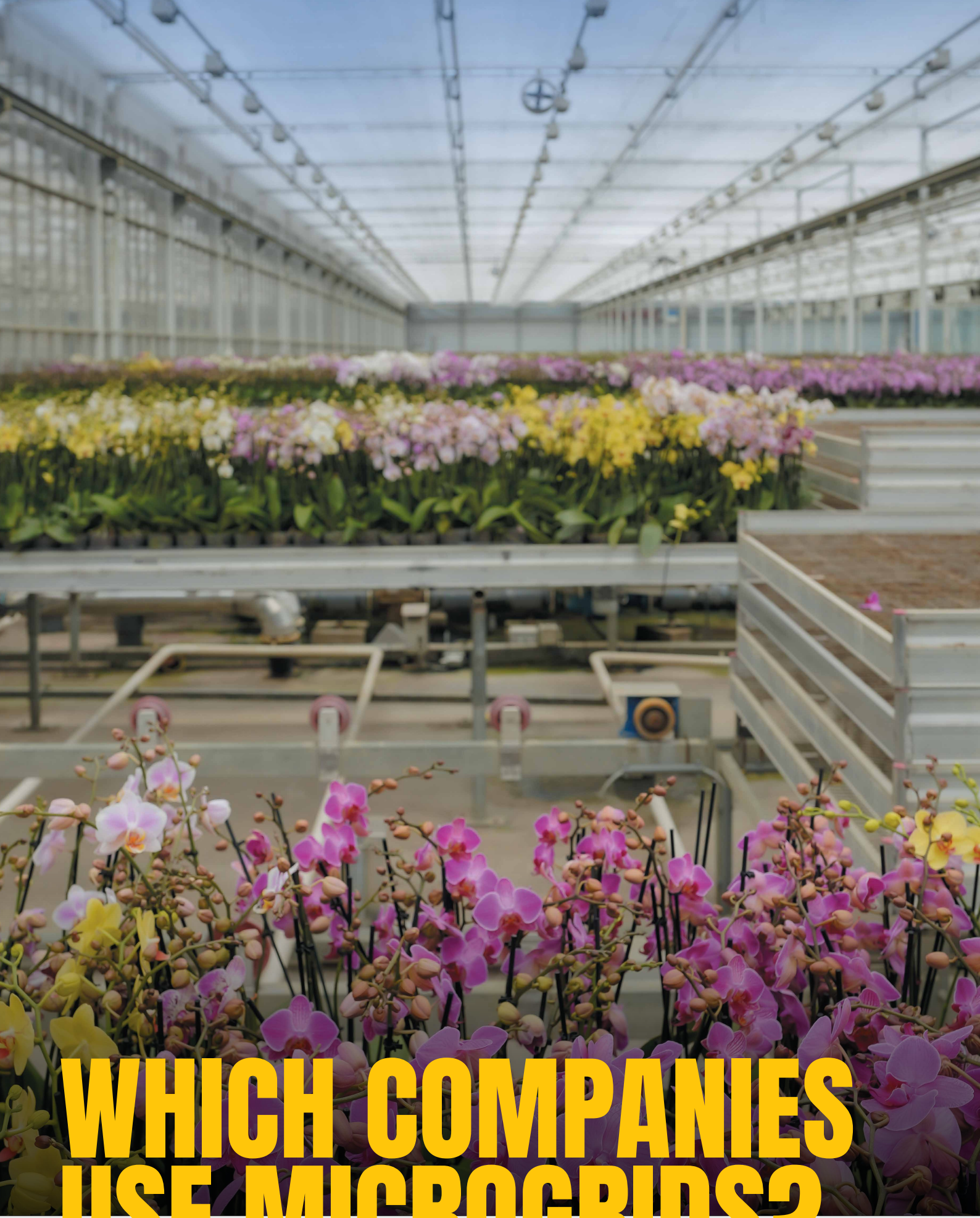
WHAT MAKES THE PON POWER MICROGRIDS SPECIAL

Creating stand-alone power grids using existing assets, including gas engines, solar panels, emergency power systems and energy storage devices such as batteries is, in itself, not that special. The special thing about Pon Power microgrids is the associated energy optimisation system developed by Pon Power: Energy Management System (EMS). This controller makes it possible to tailor the grid, so that it exactly fits your business situation and requirements.

THE ENERGY MANAGEMENT SYSTEM IN PRACTICE

The parts within a grid continuously exchange information with each other via the Energy Management System. This controller uses algorithms to calculate the most efficient thing to do at any given time. Think in terms of optimising to achieve as 'green' and quiet as possible, while at the same time taking into account reliability and costs.

The weighting of the information and the resulting actions differ from company to company, depending on the energy priorities of the consumer. For example, solar energy is often a priority, because it is renewable and free. So if there is a surplus, the use of (a) gas engine(s) is reduced in favour of solar panels.



WHICH COMPANIES USE MICROGRIDS?

A microgrid is used by companies at medium to large sites. Examples include distribution companies, large bakeries and hotels, but also horticultural companies. Many greenhouse owners already have a CHP unit and solar panels, but also want to expand with energy storage and a microgrid is ideally suited for that.

The composition of the grid varies per site. For example, a bakery can opt for a gas engine, solar panels and a battery pack. And a hotel could work with a gas engine, a battery pack and an emergency power system. In addition, microgrids are also used for shore power, allowing ships in the port to switch off their (auxiliary) engines once moored.

EVERYTHING YOU NEED FOR YOUR MICROGRID

YOU CAN CONTACT PON POWER FOR EVERYTHING YOU NEED FOR YOUR MICROGRID, REGARDLESS OF YOUR BUSINESS SITUATION AND LOCATION.

This ranges from the design, the supply of all parts, and installation to commissioning and maintenance. After all, you need to be able to rely on the fact that your business can continue to operate or expand, especially if you are located in an area in which there is a shortage of power.

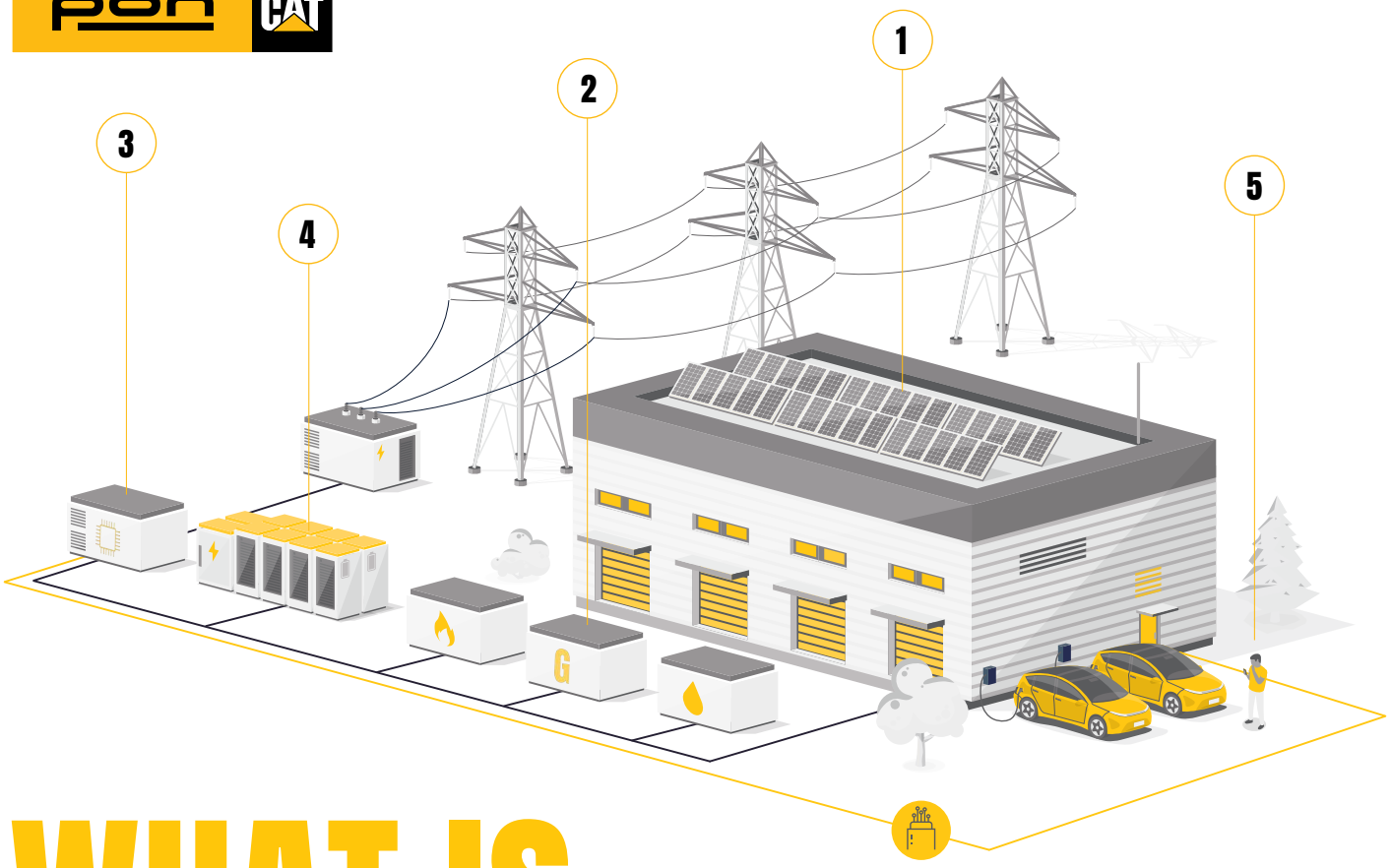
HIGH QUALITY, WIDELY APPLICABLE AND RELIABLE

The Pon Power microgrids are of high quality, widely applicable and suitable for various sectors and industries. We only use energy components and microgrid control systems with a proven track record in terms of availability, reliability and safety. We also offer you the option to conclude an (all-in) maintenance agreement with Pon Power.

LONG-TERM RELATIONSHIPS FOR THE BEST RESULTS

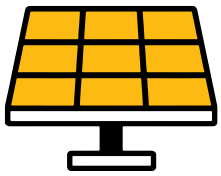
We believe that long-term relationships deliver the best results. That is why we provide 24/7 support through a dedicated team, specialised in your specific market. This team advises and guides you in every phase of the process. To achieve optimal results for you, and provide maximum security, we also work closely with relevant Pon companies and selected partners.

This way of working results in a reliable grid with high energy efficiency and optimal ownership costs. Where and when necessary, local power is produced with a high-quality and scalable energy system. The system is made up of standardised 'building blocks' that are relatively easy and quick to install.



WHAT IS A MICROGRID COMPOSED OF?

In most cases, a microgrid consists of solar panels, a generator set, Energy Management System for optimal use of grid components, an energy storage system and Cat Connect for remote monitoring. The grid stabilisation module for peak load assistance, the energy timing module for peak load limitation, and the energy capacity expansion module are all part of the energy storage system.



01.

SOLAR PANELS

We have been supplying energy systems for almost a century and know everything about investing in solar energy solutions. The advanced half-cell solar panels perform excellently in all weather conditions. In fact, independent life cycle and stress testing has shown that these solar panels exceed industry standards such as Thresher, IEC, ISO, UL, CSI, MCS, CEC and other international standards.

Our solar panels come with a 25-year yield guarantee. In addition, they are scalable, fireproof and easy to install.

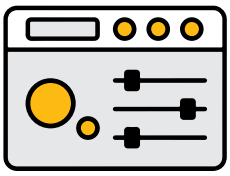
02.

GENERATOR SETS

We have a wide range of reliable low-emission diesel and gas generator sets in a power range from 9.5 to 4,000 kVa, including automatic control systems for seamless integration. We offer you a complete solution, ranging from assets, configuration, installation, operation and optimisation to aftercare.

Thanks to our gas mixing technology and fully electronic control, you can use a wide variety of gases for the generator sets, such as digester, landfill and sewage gases, but also, for example, propane, in addition to traditional natural gas. Our diesel engines can run on HVO, a biofuel, and our gas engines can run on up to 25% hydrogen mixtures. Some available gas engines are even suitable for 100% hydrogen.

In addition, efficiency can be further increased by using combined heat and power (CHP), if possible or desired. The gas engine in a CHP unit drives the generator that produces the electricity. The heat released during this process is then used to heat other rooms.



03.

ENERGY MANAGEMENT SYSTEEM (EMS)

The Energy Management System developed by Pon Power is the 'conductor' of the various microgrid components, as it operates and controls those components. The EMS uses algorithms to calculate when and which energy source is most effective. In doing so, it takes into account the characteristics of the electricity grid, the chosen energy storage and the load requirements.

The weighting of all information and the resulting actions depend on your energy priorities. For example, solar energy is often a priority and if the supply thereof exceeds demand, the battery is charged with that surplus. Once the battery is full, energy can be supplied back to the electricity grid. In any case, you are at all times assured of a reliable power supply at the lowest costs.

04.

ENERGY STORAGE SYSTEM

Pon Power offers a wide range of energy storage systems. From easily installable, scalable 233 kWh batteries to project-specific solutions ranging from 3.79MW to 6.25MW in 20ft containers.

These batteries play an important role in the sustainability goals of our microgrids, by storing an excess of green energy and using it later, for example.

05.

REMOTE MONITORING

Cat Connect is an intelligent combination of services and tools that will help you increase the operational efficiency of your Cat installation(s). Cat Connect allows you to monitor the operation of your smart microgrid 24/7. For example, you can identify potential problems, gain insight into costs and solve problems remotely through your smartphone, desktop, laptop and/or tablet. With Cat Connect you are always and completely up to date, wherever you are.

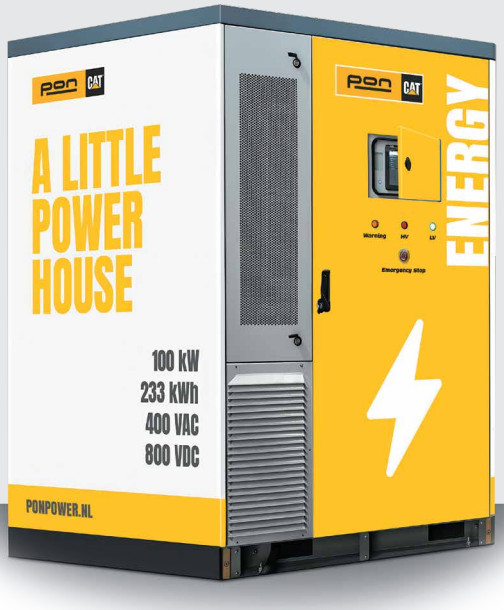
ENERGY STORAGE SYSTEM SPECIFICATIONS

MODULAR BATTERY ENERGY STORAGE SYSTEM (BESS)

Benefits of a Modular Battery Energy Storage System (BESS):

- Highly flexible and scalable
- Ensures grid stability and balance
- Prevents fluctuations and maintains a stable power supply
- Stores excess energy and releases it when needed
- Reduces greenhouse gas emissions

PPB-XS
100KW/233KWH ALL-IN-ONE BATTERY ENERGY STORAGE SYSTEM



TECHNICAL SPECIFICATIONS

MODEL		PPB-XS
Maximum charge/discharge power	kW	100
Nominal Energy Capacity (DC)	kWh	233
Nominal AC Voltage	VAC	400
Frequency	Hz	50-60
Cycle life @25°C 70% SOH	cycles	8000
Nominal DC Voltage	VDC	800
Protection class		IP54
Operating ambient temperature	°C	-20 to +55
Cooling battery		Liquid cooling
Cooling inverter		Air cooling
Housing type		Cabinet
Color		RAL7035
Dimensions W x D x H	mm	1400 x 1350 x 2100
Weight	kg	~2700
Grid code		RfG (EU 2016/631). EN 50549-1 EN 50549-2 EIFS 2018:2 CE marking
Safety		(LVD) (2014/35/EU)
EMC		EMC (2014/30/EU)
Certification		PGS37-1
		UL9540A

PPB-G
CABINET 3.79

TECHNICAL SPECIFICATIONS

MODEL		PPB-G CABINET 3.79
Rated Energy	kWh	379
Discharge rate	C	1
Cell type		LFP
Cycle life @25°C 80% SOH	cycles	8.000
Cycle life @25°C 70% SOH	cycles	10.000
Rated voltage	VDC	1331.2
Voltage Range	VDC	1040~1500
Protection class		IP56 (Battery Room)
		IP23 (Electrical Room)
		IP66 (Control Box)
		IP66 (Battery Modules)
		IP26 (Chiller Unit)
Operating ambient temperature	°C	-20 -to +55
Cooling battery		Liquid cooling
Cooling inverter		Air cooling
Housing type		Cabinet
Color		RAL7035
Dimensions W x D x H	mm	1390 x 1344 x 2348
Weight	kg	~3650
Certification		PGS37-1
		UL9540A

PPB-G
CABINET 4.07

TECHNICAL SPECIFICATIONS

MODEL		PPB-G CABINET 4.07
Rated Energy	kWh	407
Discharge rate	C	0.5
Cell type		LFP
Cycle life @25°C 80% SOH	cycles	8.000
Cycle life @25°C 70% SOH	cycles	10.000
Rated voltage	VDC	1331.2
Voltage Range	VDC	1040~1500
Protection class		IP56 (Battery Room)
		IP23 (Electrical Room)
		IP66 (Control Box)
		IP67 (Battery Modules)
		IP26 (Chiller Unit)
Operating ambient temperature	°C	-20 -to +55
Cooling battery		Liquid cooling
Cooling inverter		Air cooling
Housing type		Cabinet
Color		RAL7035
Dimensions W x D x H	mm	1390 x 1344 x 2348
Weight	kg	~3650
Certification		PGS37-1
		UL9540A

PPB-G
CONTAINER 3.79

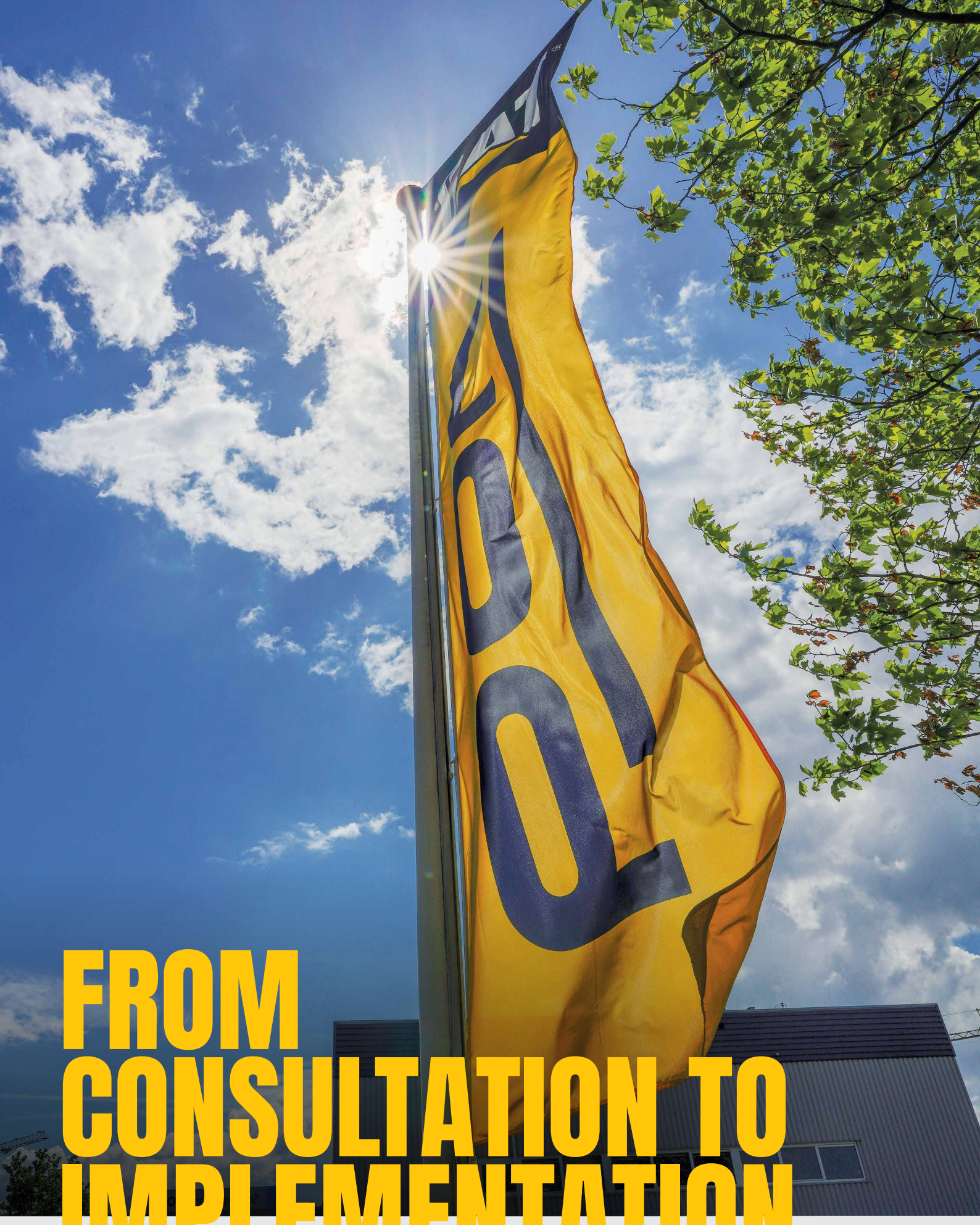
TECHNICAL SPECIFICATIONS

MODEL		PPB-G CONTAINER 3.79
Rated Energy	kWh	3793
Discharge rate	C	1
Cell type		LFP
Cycle life @25°C 80% SOH	cycles	8.000
Cycle life @25°C 70% SOH	cycles	10.000
Rated voltage	VDC	1331.2
Voltage Range	VDC	1040~1500
Protection class		IP55/NEMA 3R (Battery Room)
		IP66 (Battery Modules)
		IP66 (Sub Control Box)
		IPX5 (Electrical Room)
		IPX6 (Cooling Unit)
Operating ambient temperature	°C	-20 -to +55
Cooling battery		Liquid cooling
Cooling inverter		Air cooling
Housing type		Container
Color		RAL7042 (Optional RAL 9003)
Dimensions W x D x H	feet	20
	mm	2896 x 2462 x 6058
Weight	ton	~36
Certification		PGS37-1
		UL9540A

PPB-G
CONTAINER 4.07

TECHNICAL SPECIFICATIONS

MODEL		PPB-G CONTAINER 4.07
Rated Energy	kWh	4073
Discharge rate	C	0,5
Cell type		LFP
Cycle life @25°C 80% SOH	cycles	8.000
Cycle life @25°C 70% SOH	cycles	10.000
Rated voltage	VDC	1331.2
Voltage Range	VDC	1040~1500
Protection class		IP55/NEMA 3R (Battery Room)
		IP66 (Battery Modules)
		IP66 (Sub Control Box)
		IPX5 (Electrical Room)
		IPX6 (Cooling Unit)
Operating ambient temperature	°C	-20 -to +55
Cooling battery		Liquid cooling
Cooling inverter		Air cooling
Housing type		Container
Color		RAL7042 (Optional RAL 9003)
Dimensions W x D x H	feet	20
	mm	2896 x 2462 x 6058
Weight	ton	~36
Certification		PGS37-1
		UL9540A



FROM CONSULTATION TO IMPLEMENTATION

So what's involved when you need a microgrid? What approach do we apply? It all starts with an assessment, during which we seek answers to questions such as:

- What is the current state of affairs?
- How much power is needed for what and when?
- Is support needed regarding communication with the grid operator?
- Are solar panels or other assets that can be used in the grid already present?
- Is collaboration possible with multiple parties located at the relevant site?

INVESTMENT AND ROI

After the extensive assessment, the next step can be taken, which is the joint completion of the microgrid tool developed by Pon Power. We use this to calculate your business case, thereby providing you with an accurate picture of the investment and the ROI. The methodology of this tool always starts with the sun, as it plays a sustainable and leading role within the microgrid.

IMPLEMENTATION

During the implementation of your microgrid project, you can count on round-the-clock support from your Pon Power team, which specialises in your specific market and works closely with relevant Pon companies and selected partners. We have all the necessary expertise in the field of energy transition and the design and implementation of microgrids. We combine this knowledge and expertise with the knowledge and expertise you have about your company and industry. The result of this collaboration is a reliable grid with high energy efficiency and optimal ownership costs.

SERVICE LEVEL AGREEMENT

A-SERVICE

- Ensure availability of parts and price stability
- Digital connectivity and platform access
- Support during normal working hours (07:30-15:30), remotely within 4 hours of error reporting
- Service visits every 12 months, according to the maintenance manuals

B-SERVICE

- Support during normal working hours (07:30-15:30), remotely within 2 hours of error reporting
- Off work hours, support within 8 hours of error reporting
- Remote stock of spare parts for quick rectification of malfunctions

C-SERVICE

- A & B-Services
- Local stock of spare parts for quick rectification of malfunctions
- In the event of a malfunction where the BESS is non-operational, the on-site response time will be a maximum of 2 working days

YOU ARE PROVIDED WITH A FULL-SERVICE SOLUTION

DOING BUSINESS WITH US MEANS YOU DON'T HAVE TO WORRY ABOUT YOUR INSTALLATION

24/7 service

Our Customer Service Centre monitors your installation 24/7. If anything goes wrong, you can be sure that we are always one step ahead of any risks.

Many in-house facilities

Our in-house facilities guarantee quality and speed. For example, Pon Power has its own lubricating oil laboratory, test bed and calibration department, thereby ensuring that our service technicians always work with perfectly adjusted tools.

Always nearby

Thanks to more than 170 service technicians and various service branches across the country.

Fast delivery of parts

We can deliver 98% of all parts within 24 hours.

Customised maintenance contracts

Your contract is tailored to your wishes and needs, whether it concerns basic maintenance or a full-service contract.

Training Academy

We organise technical training for both customers and employees. Naturally, these trainings also include a focus on health and safety.

POWERED BY PURPOSE

T +31 (0)78 642 0420
W pon-cat.com/microgids

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