

XRGI®

ELECTRIFYING HEAT



THE GOOD FEELING OF GENERATING
ELECTRICITY AND HEAT
CHEAPLY AND ENVIRONMENTALLY-FRIENDLY
YOURSELF

**YOUR OWN
PERSONAL ENERGY REVOLUTION**

Rising energy prices, scarcer raw materials and environmental damage from air pollution make the pursuit of an alternative energy policy, often referred to as the 'energy revolution', one of the most important challenges facing politicians and society today. We are all called upon to do our bit to handle precious resources more sustainably.

With an XRG1®, you will not just make a valuable contribution to climate protection, you will also reduce your energy costs without missing out on anything! The highly efficient principle of combined heat and power makes this possible.





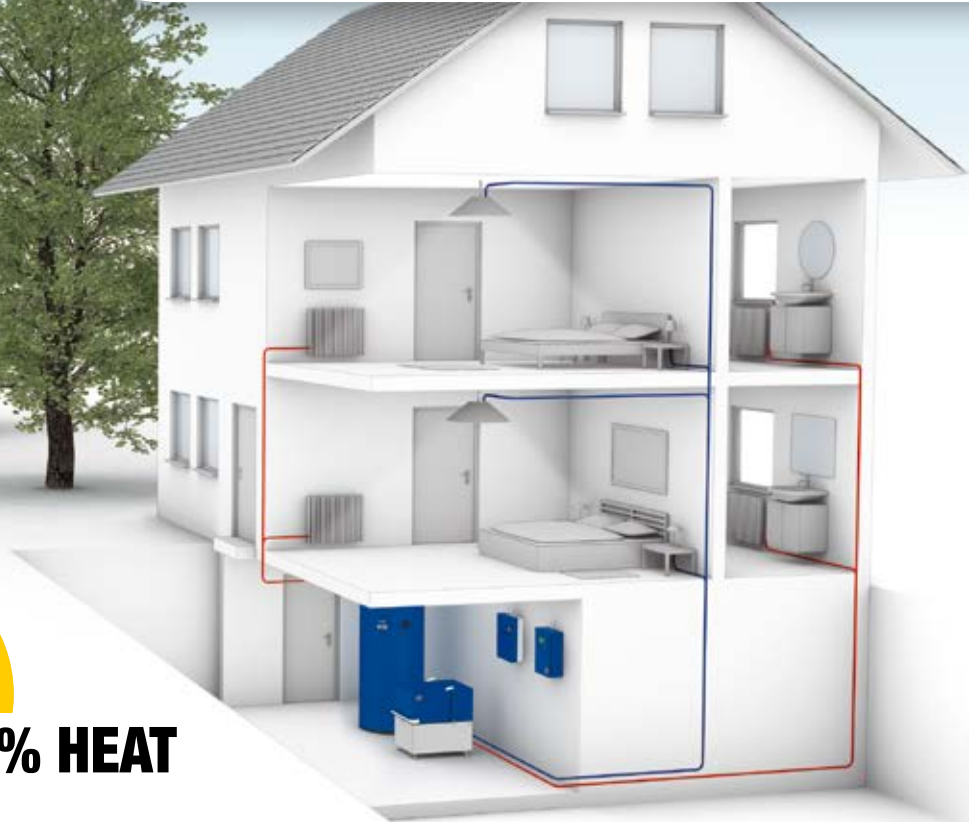
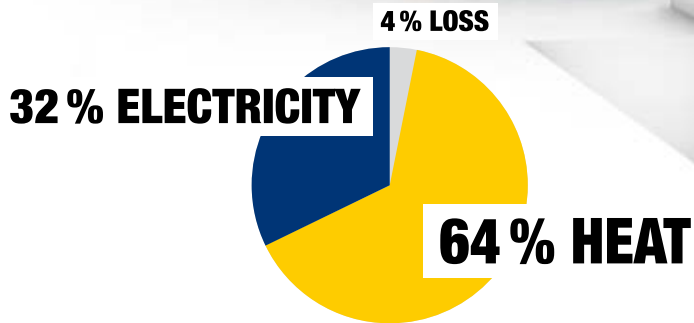


Conventional power stations utilise only about 40% of the fuel used, as they only generate electricity. The heat (waste heat) produced is unused and discharged into the environment with damaging consequences.

One reason for this waste is the fact that conventional power stations produce electricity remotely from their consumers. This large distance means that it is not economically viable to transport the waste heat to homes to be put to good use. There is a further disadvantage associated with this distance: the electricity generated in the power station has to be transported to the consumer, with transmission losses occurring on the many kilometre-long route.

The XRGI® is installed precisely where the electricity and heat are needed, reducing network costs and avoiding transmission losses.

A SIMPLE YET
INGENIOUS PRINCIPLE:
COMBINED
HEAT AND POWER



A fuel is burned in an internal combustion engine. The kinetic energy released in this process drives a generator that produces electricity. The XRGI® captures the heat produced and feeds it into a circuit – thus enabling it to be used for space heating or producing hot water. Up to 96% of the primary energy used is therefore utilised. It is this excellent performance level that makes the XRGI® so efficient.

UP TO
96%
EFFICIENCY



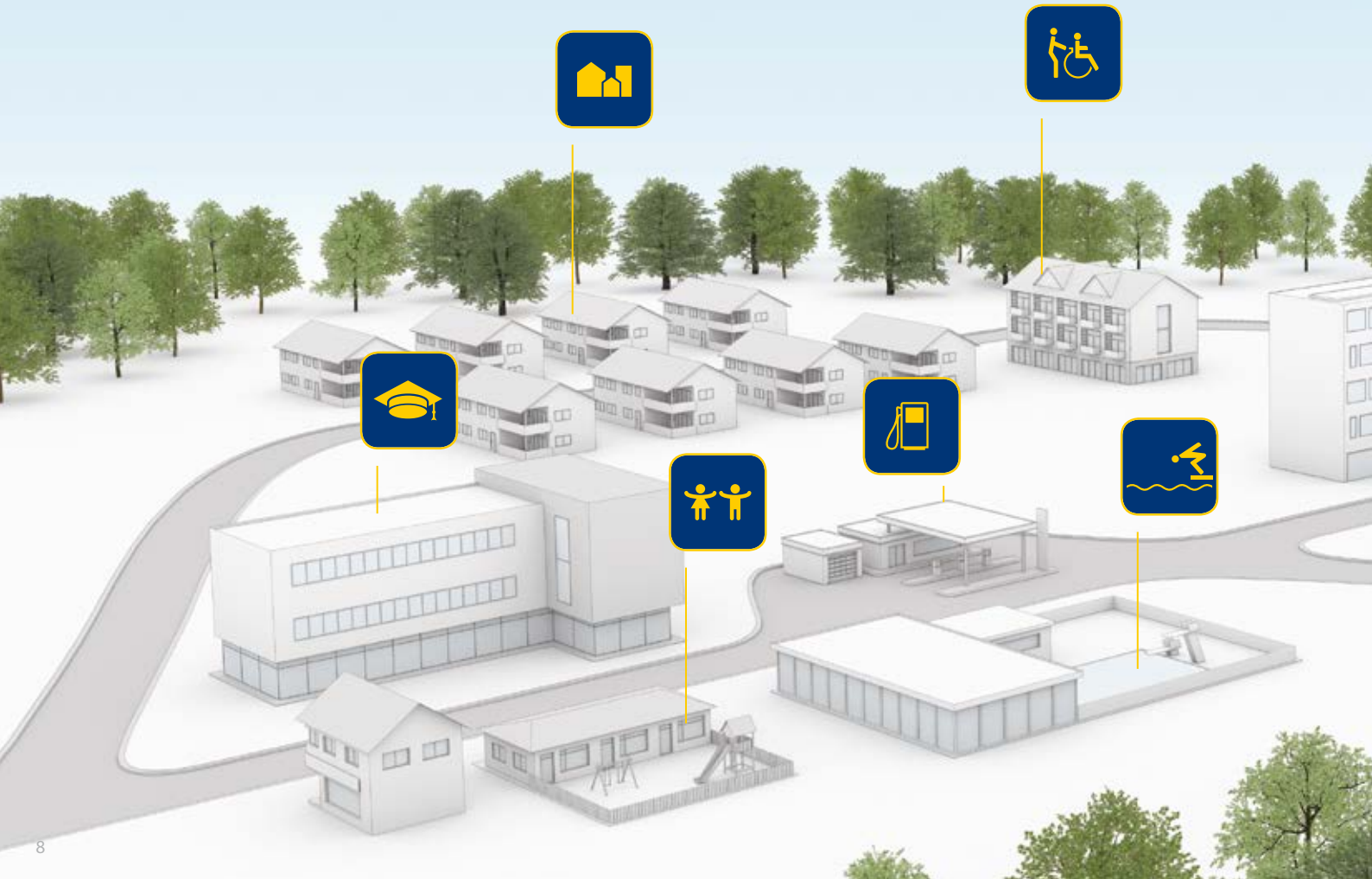


XRGI®
SIMPLIFIES YOUR CHANGE
TO MORE
EFFICIENT ENERGY

ANYONE CAN SWITCH WITH XRGI®

Regardless of whether you are planning a new building or modernising an existing one – the XRGI® is always the right choice. It improves the property's carbon footprint, ensuring a good energy performance certificate and thereby enhancing the value of the property. The modular construction of the XRGI® makes it possible to switch to combined heat and power, also known as cogeneration, even in difficult structural situations. It can easily be integrated into an existing supply system.

FOR
ALL PROPERTIES
THAT NEED ELECTRICITY AND HEAT
THE WHOLE YEAR ROUND



SUPPLYING PROPERTIES, INDUSTRY AND DISTRICT HEATING NETWORKS

From apartment blocks to municipal buildings – an XRG[®] supplies electricity and heat to any building with an annual heat requirement of 30,000 to 2,000,000 kWh – economically and eco-friendly.

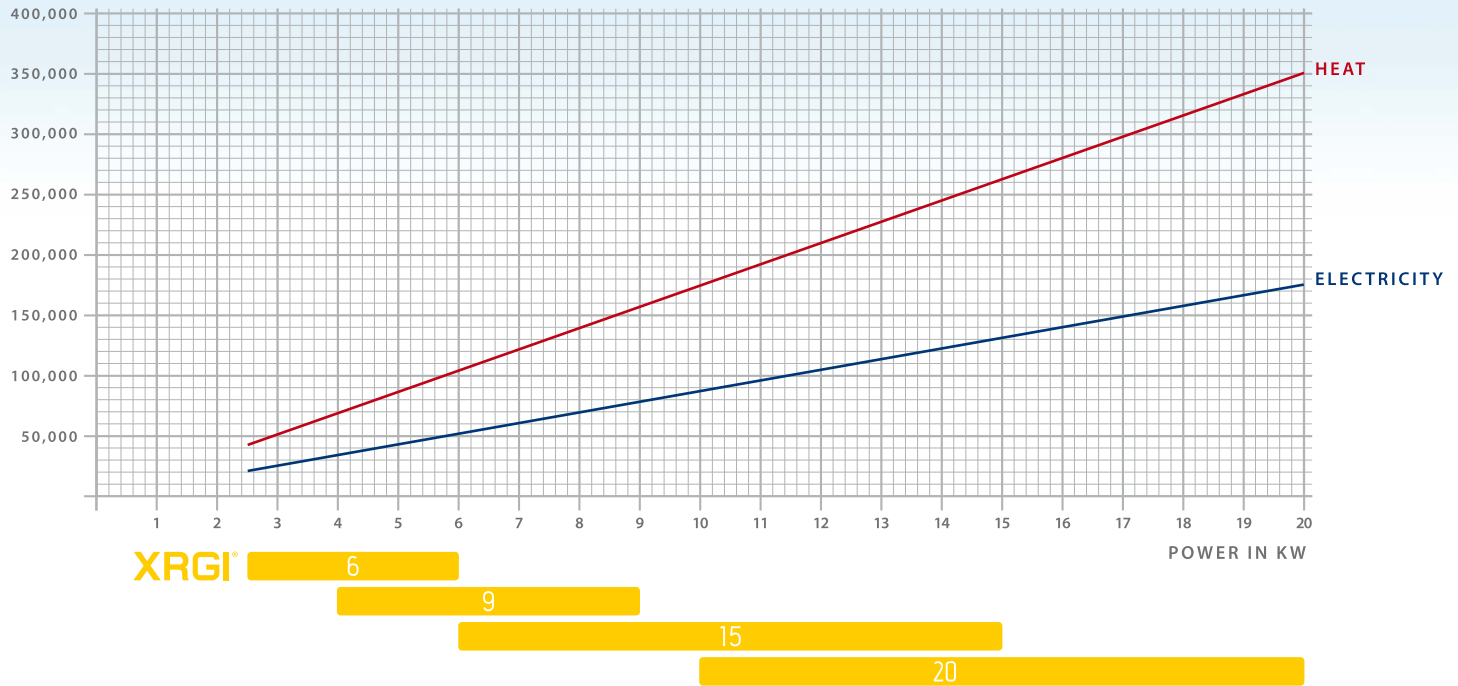
This is possible by operating XRG[®] systems in parallel rather than just as single systems, the product range covering 2.5 to 80 kW_e.

And the reliable and efficient supply is also ensured for buildings connected to a virtual power plant, where several XRG[®] systems at different locations are connected to form a network.

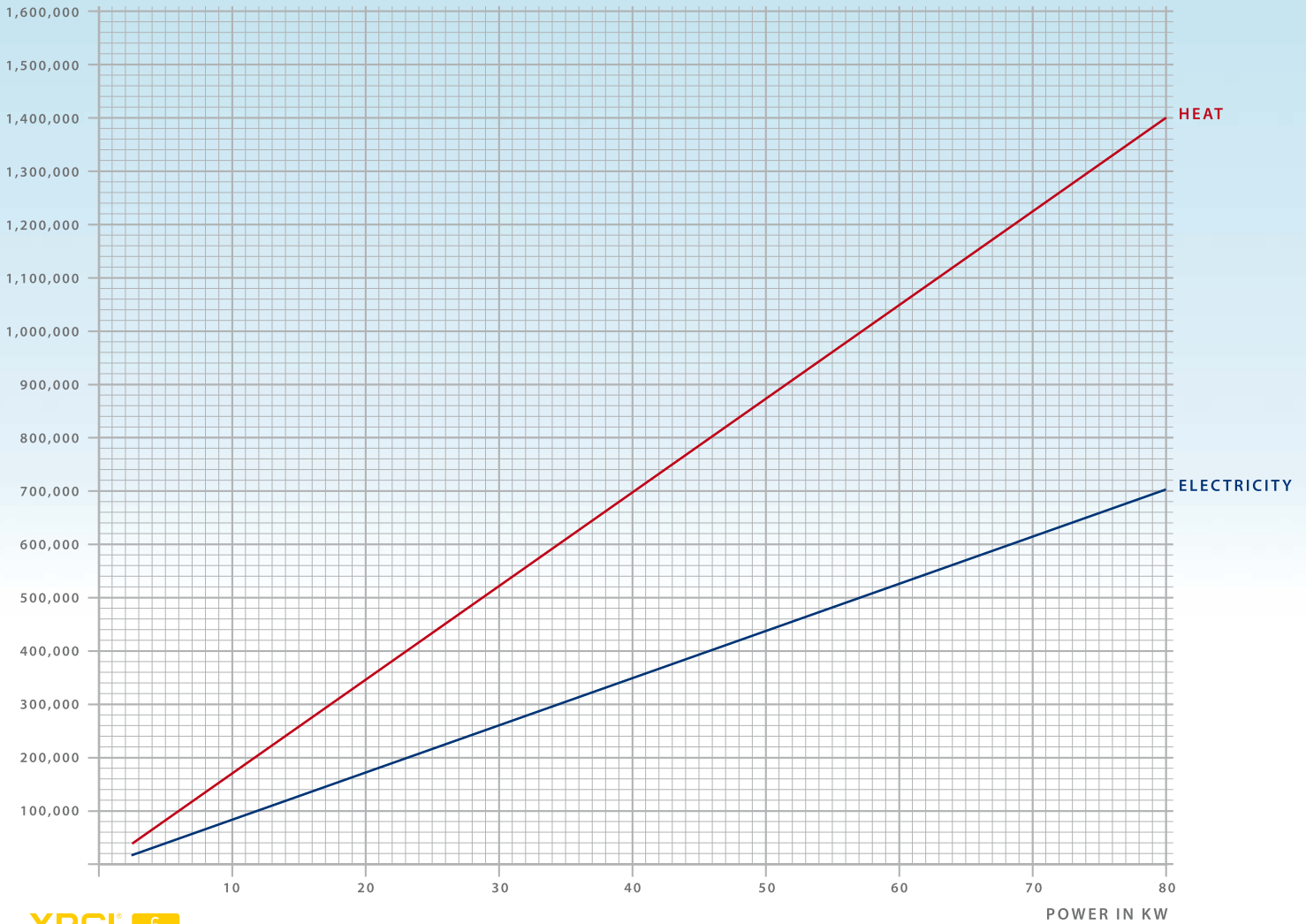


FOR
ALL PROPERTIES
THAT NEED ELECTRICITY AND HEAT
THE WHOLE YEAR ROUND

ENERGY REQUIREMENT IN KWH/YEAR



ENERGY REQUIREMENT IN KWH/YEAR



XRGI® 6

9

15

20

XRGI® IN PARALLEL OPERATION

THE RIGHT AND TAILOR-MADE **SOLUTION** FOR EVERY REQUIREMENT



THE ENDURING MINIS: XRGI® 6 & XRGI® 9

A newly developed high-performance engine makes our “small systems” into real endurance runners with service intervals of 10,000 operating hours. The XRGI® 6 and the XRGI® 9 achieve an overall efficiency rate of 93%* – even higher with optional condenser. The XRGI® 9 was awarded the German “Blue Angel” eco-label.

These two models are ideal for large detached houses and smaller apartment blocks, hotels or office buildings.



THE CLASSIC: XRGI® 15

The XRGI® 15 is perfect for larger buildings, such as hotels, farms or nursing homes. With an overall efficiency rate of 92%*, its efficiency and quality have already been proved in the form of thousands of satisfied customers. The XRGI® 15 has already received multiple awards.

XRGI® – OUTSTANDING CUTTING-EDGE TECHNOLOGY

EC POWER has redefined the state of the art for combined heat and power plants with the XRGI® 15 and the XRGI® 20. Predominantly larger properties, like hotels, hospitals and care homes, can now benefit from this.

The XRGI® 6 and XRGI® 9 complete the sub-50 kW_{th} range. These systems also make combined heat and power plants of interest for larger detached houses, smaller apartment blocks and small hotels.



THE POWER PACK: XRGI® 20

The XRGI® 20 achieves an overall efficiency rate of 96%*. This level of efficiency was awarded the German “Blue Angel” eco-label. It comes into its own in properties, such as hospitals or municipal utilities.



PARALLEL OPERATION

All XRGI® systems are designed to operate not just as individual systems. Their modular design enables them to be controlled flexibly, economically and efficiently in parallel, supplying electricity and heat tailored to all levels of demand. They can also be integrated into virtual power plants.

* Figure without condenser



STORAGE TANK

- Stores excess heat in the event of high demand for electricity
- Reserve in the event of high demand for heat



POWER UNIT

- Engine drives generator
- Generator produces electricity
- Heat exchanger transfers heat to the Q-Heat Distributor



Q-HEAT DISTRIBUTOR

- Absorbs heat from the Power Unit
- Distributes heat to the water circuit and/or Storage Tank

XRGI®

STATE OF THE ART



UP TO
10,000
OPERATING HOURS
SERVICE
INTERVAL

THAT'S SYSTEMATIC EFFICIENCY

An XRGI® system consists of three main components – Power Unit, Q-Heat Distributor and iQ-Control Panel. You can also extend your XRGI® system with a Storage Tank with a capacity of 500, 800 or 1,000 litres.

The Power Unit is the heart of every system. Its engine was specially developed for EC POWER and is exceptionally durable and reliable. The heat generated from the engine is transferred via the Q-Heat Distributor to the property's heating circuit, to which the Storage Tank is also connected. The iQ-Control Panel is the brain of the system and controls the Power Unit in line with your requirements – optimising its operation fully automatically.

Unlike what is usual in the industry, all individual components, including software, as well as their interaction have been tested and certified by an independent inspection body, ensuring that the XRGI® meets the highest safety standards. The German Technical and Scientific Association for Gas and Water E.v. (DVGW) also certified the special quality of XRGI® products.

iQ-CONTROL PANEL

- Controls the system to meet requirements
- Analyses in real-time your consumption patterns and optimises operation fully automatically



SIMPLE
INTEGRATION OF THE **XRGI®**
INTO THE EXISTING
SUPPLY SYSTEM



INSTALL, CONNECT, SAVE

In its class of 3–80 kW_{el} the XRGI® is one of the most compact cogeneration plants on the market. The modular design of the XRGI® and a patented integration principle mean that it will fit with ease into any basement or plant room. The Power Unit needs less than a square metre of space and fits through all doors.

An improved carbon footprint and lower energy costs increase the value of your property.



EXCELLENT
EFFICIENCY
DOES NOT NEED TO
SHOUT ABOUT IT



THE XRGI® – A SILENT POWER HOUSE

The XRGI® is one of the quietest cogeneration systems on the market. With a noise level of just 49 dB(A) at full power, measured from a distance of 1 metre, it is quieter than a conventional boiler. Fitted with an additional exhaust gas silencer and vibration damper, the noise level can be reduced even further, with the result that there are virtually no limits to the possible uses of the XRGI®. Unlike other systems, the plant room does not require mechanical ventilation for the XRGI®, avoiding the additional noise generated by a ventilation system and thereby ensuring unsurpassed quiet operation.



BECOME

SELF-SUFFICIENT!

IT'S WORTH YOUR WHILE

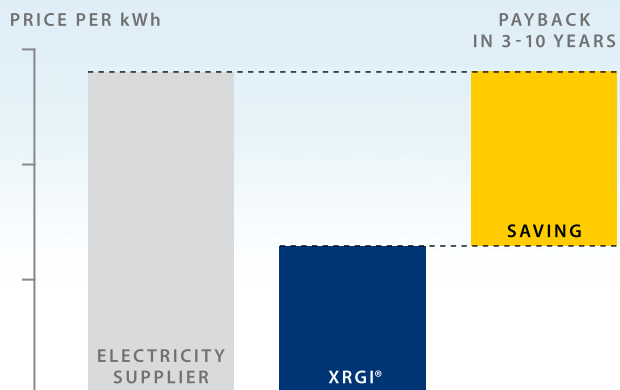


BENEFIT FROM MAXIMUM POSSIBLE OWN USE

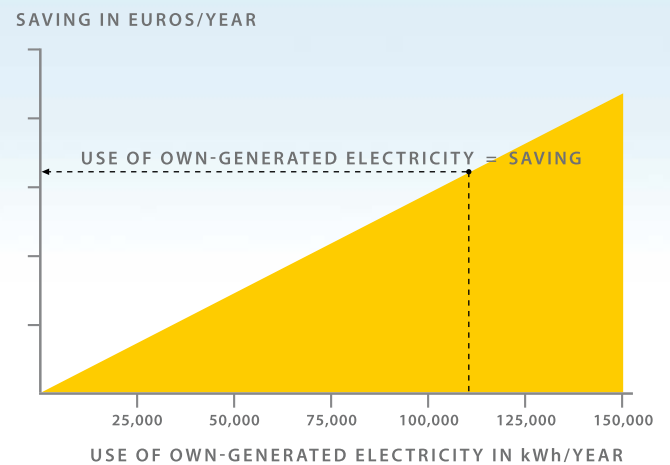
You can either sell your own-generated electricity or use it yourself. A simple calculation makes the benefits clear: the higher the amount of own-generated power in your overall electricity consumption, the higher the savings.



**I use the electricity
I have produced myself**



INCLUDING COST OF GAS, TAX, FUNDING,
REPAYMENT, FULL MAINTENANCE COSTS



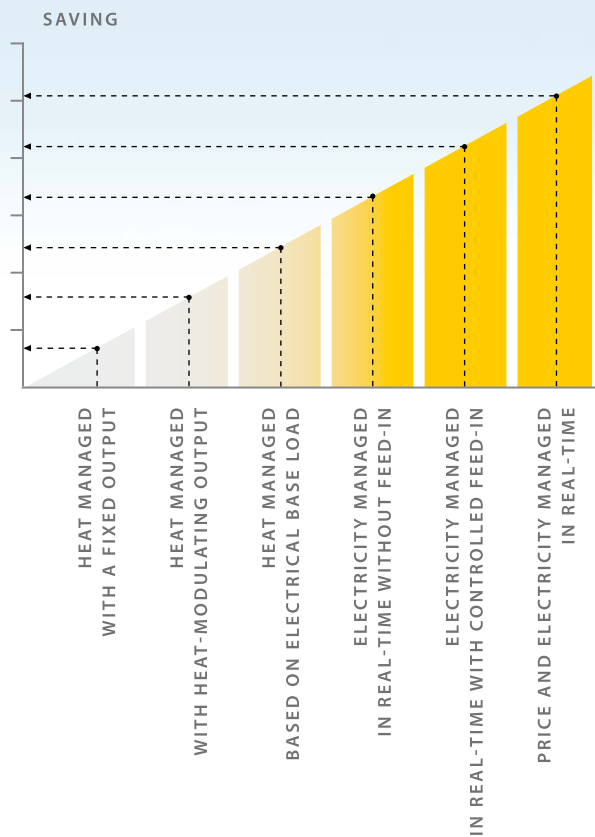
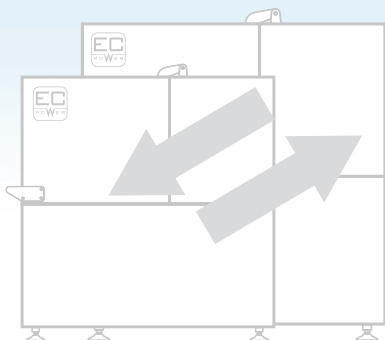
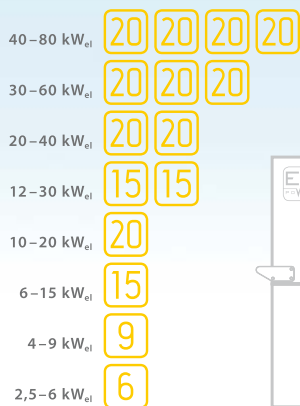
Calculations depend on your provider's current electricity and gas charges.

BECOME SELF-SUFFICIENT! IT'S WORTH YOUR WHILE

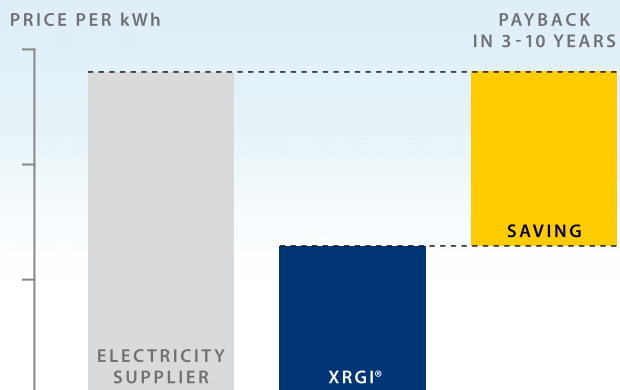
CORRECTLY SIZED



OPTIMUM OPERATING STRATEGY



MAXIMUM PROFIT



INCLUDING COST OF GAS, TAX, FUNDING, REPAYMENT, FULL MAINTENANCE COSTS

EXAMPLE:
 REAL USAGE IN WITTENSEE, GERMANY
 ELECTRICITY REQUIREMENT: 125,295 kWh PER YEAR
 HEAT REQUIREMENT: 190,782 kWh PER YEAR

	XRGi® 6	XRGi® 15
ELECTRICITY PRODUCTION FROM COGENERATION	52,560 kWh	85,661 kWh
ELECTRICITY PURCHASED FROM ELECTRICITY PROVIDER	72,790 kWh	43,611 kWh
CONTROLLED FEED-IN	55 kWh	3,976 kWh
HEAT PRODUCTION FROM COGENERATION	111,356 kWh	180,181 kWh
HEAT PRODUCTION FROM BOILER	79,426 kWh	10,601 kWh
OPERATING HOURS OF CHP/YEAR	8,760 Op.h.	6,159 Op.h.
ANNUAL SAVINGS	€8,028	€14,064

HEAT MANAGED
 BASED ON ELECTRICAL BASE LOAD

ELECTRICITY MANAGED IN REAL-TIME
 WITH CONTROLLED FEED-IN

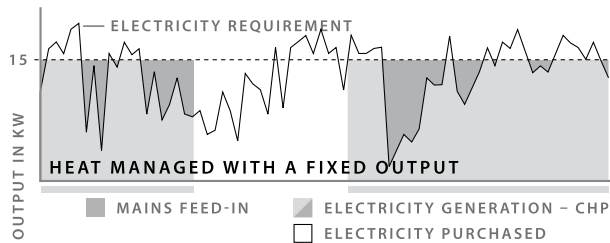
UNIQUE INTELLIGENT TECHNOLOGY TO MEET MAXIMUM DEMAND

A mastermind hides behind every business success. As with the XRGI®: The intelligent iQ-Control Panel regulates the operation of the XRGI® components fully automatically – focusing on electricity, heat or tariff, depending on the operating strategy.

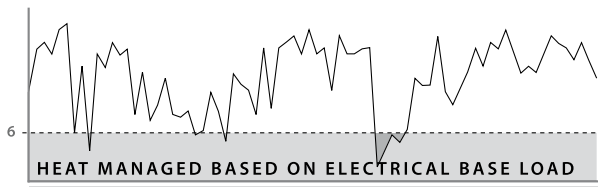


CHP HEAT-MANAGED

EXAMPLE: CHP WITH 15 KW_{EL}
SYSTEM SIZED ACCORDING TO DEMAND PEAKS



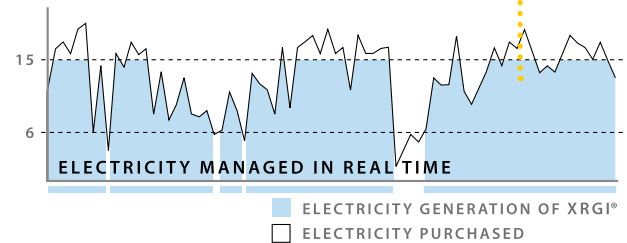
EXAMPLE: CHP WITH 6 KW_{EL}
SYSTEM SIZED ACCORDING TO BASE REQUIREMENT



WITHOUT MODULATION ONLY 30 - 50% OF THE
COGENERATION POTENTIAL IS UTILISED.

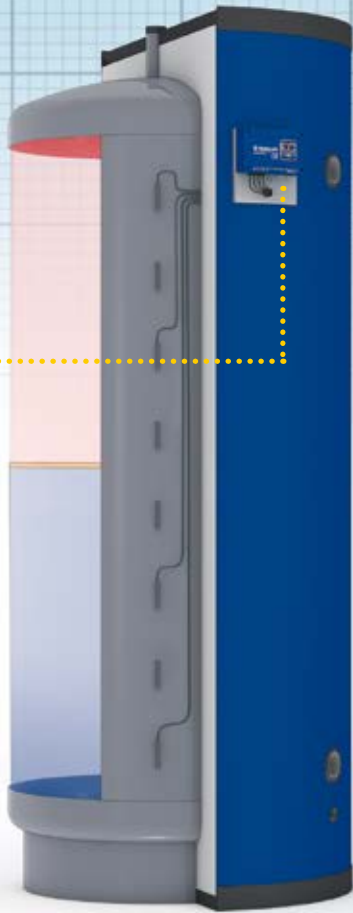
XRGI® WITH PATENTED REAL-TIME MODULATION

EXAMPLE: XRGI® 15 WITH 6 - 15 KW_{EL}
MAXIMUM USE OF COGENERATION POTENTIAL



OUTPUT MODULATION BY UP TO 50 %

- iQ analyses your consumption and adapts the operation of your XRGI® in real time.
- Thanks to patented real-time modulation, the XRGI® can be set up based on actual demand, thereby achieving much higher efficiency.



AUTO-ADAPTIVE
**INTELLIGENT
CONTROL**

**PATENTED
REAL-TIME
MODULATION**

**INTELLIGENT
STORAGE
MANAGEMENT**

The iQ-Control Panel learns the consumption patterns in the property and produces intelligent user profiles. It then creates forecasts for expected consumption based on these user profiles. It continuously compares the projected consumption with the actual consumption and optimises the user profile in real time.

A combined heat and power plant produces electricity for as long as the heat produced can either be consumed or stored. With the help of its forecasts, the iQ-Control Panel then practises intelligent storage management. It makes predictions about when demand for electricity will be particularly high and compares this with the anticipated heat requirement. The iQ-Control Panel also ensures that the Storage Tank always has the maximum possible capacity free to absorb the heat produced during electricity generation.

The XRGI® achieves maximum efficiency thanks to its real-time modulation. You will be exploiting 100% of the potential of your combined heat and power plant due to the fact that it can vary its output by up to 50%.

With this unique energy management system, you will always be able to meet the changing conditions on the energy market quickly and flexibly – even with new future legislative regulations.

That makes the XRGI® incomparably efficient.

STORAGE MANAGEMENT

iQ and Storage Control ensure that the heating circuit and Storage Tank can absorb the heat generated during power generation.

**UP TO 30% HIGHER OWN ELECTRICITY NEEDS MET
THAN WITH STANDARD CHP**

100% USE OF COGENERATION POTENTIAL

**PREVENTS UNNECESSARY FEED-IN OF ELECTRICITY,
IMPROVING EFFICIENCY**



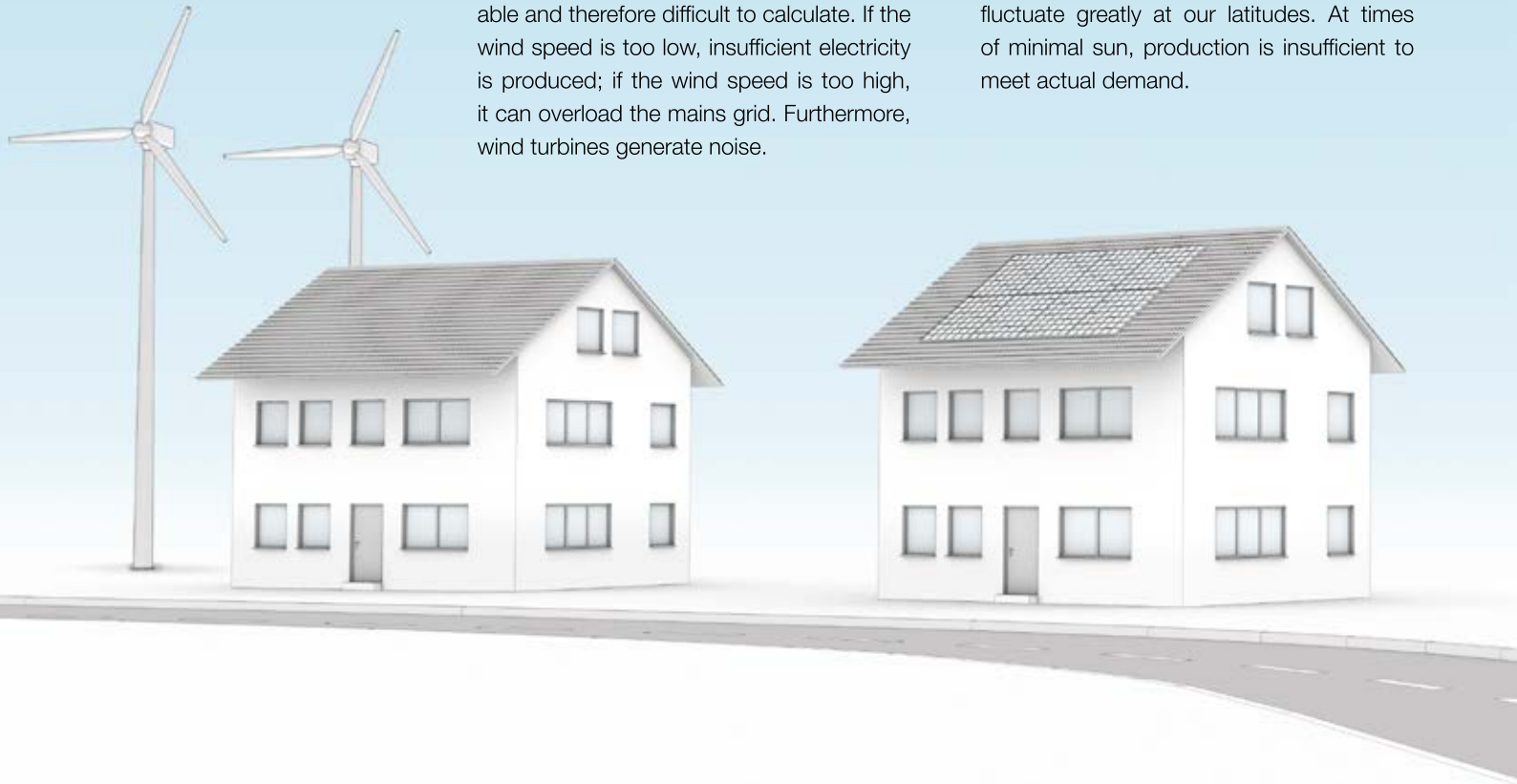
WIND ENERGY

Wind energy is unrestrictedly available and can be converted into environmentally friendly electricity. However, the wind is variable and therefore difficult to calculate. If the wind speed is too low, insufficient electricity is produced; if the wind speed is too high, it can overload the mains grid. Furthermore, wind turbines generate noise.



SOLAR ENERGY

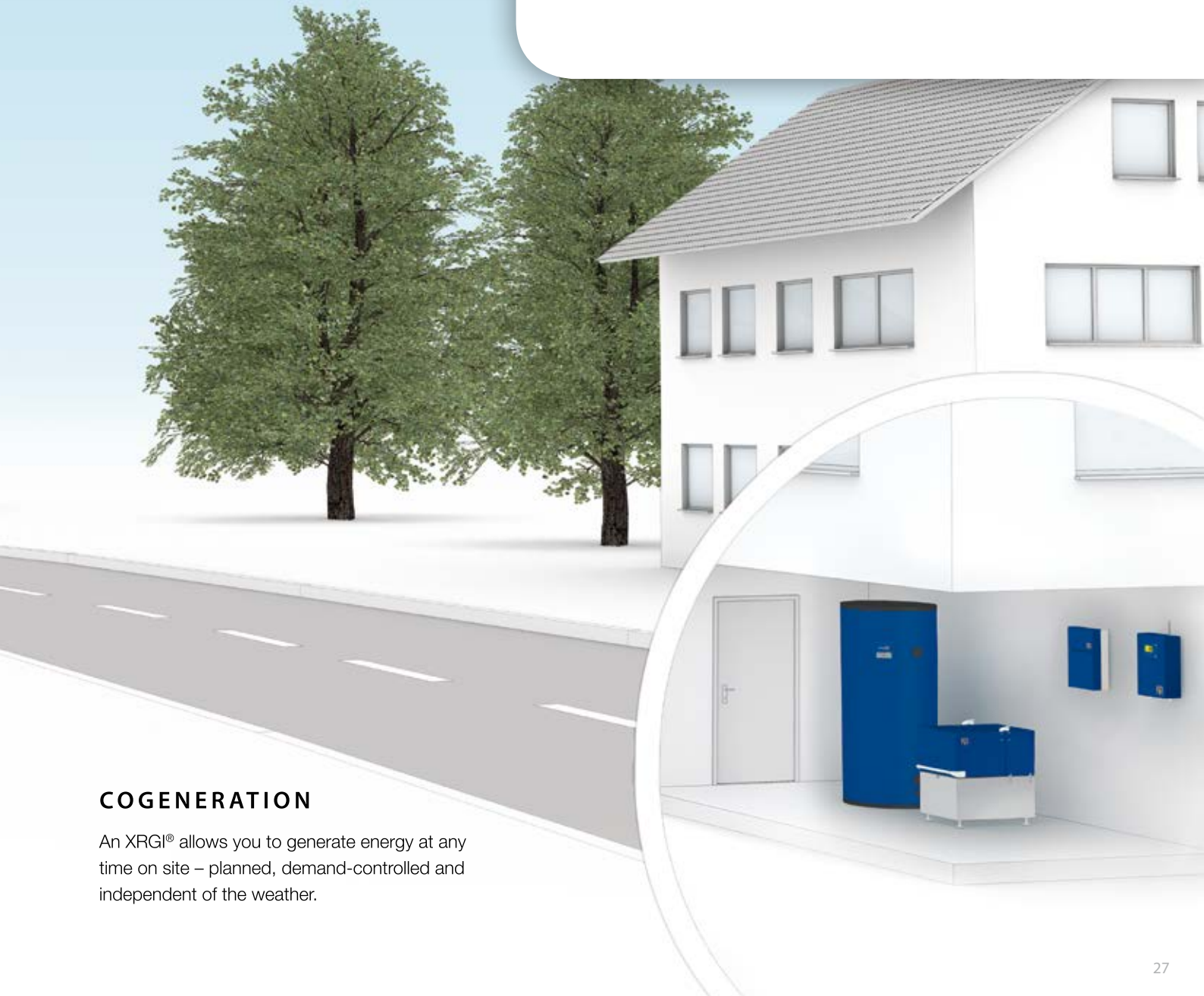
Solar energy could meet the electricity requirements of the entire world population but the duration and intensity of the sun fluctuate greatly at our latitudes. At times of minimal sun, production is insufficient to meet actual demand.



The future belongs to green energy. Green energy is the only way to replace polluting coal-fired, gas-fired and nuclear power stations. The XRGI® is joining the ranks of environmentally friendly sources of energy. It utilises the fuel used extremely efficiently so that emissions of harmful greenhouse gases are reduced to a minimum.

In doing so, the XRGI® operates independently of wind and sun – the volume of electricity and heat produced is determined by your needs and not by the weather. This makes the XRGI® both an ideal addition to wind power and photovoltaic systems, as well as a useful alternative.

A
STRONG PARTNER
IN EVERY RESPECT



COGENERATION

An XRGI® allows you to generate energy at any time on site – planned, demand-controlled and independent of the weather.

A
STRONG BRAND
WITH INNOVATIVE STRENGTH

AUTO-ADAPTIVE
**INTELLIGENT
CONTROL**

PATENTED
**REAL-TIME
MODULATION**

INTELLIGENT
**STORAGE
MANAGEMENT**

VERY FAST
PAYBACK

EASY
INTEGRATION

UP TO
10,000
OPERATING HOURS
**SERVICE
INTERVAL**

THE MOST
COMPACT
AND
LIGHTEST
IN ITS CLASS

THE
QUIETEST
IN ITS CLASS

VALUABLE
CONTRIBUTION TO
**ENVIRONMENTAL
PROTECTION**

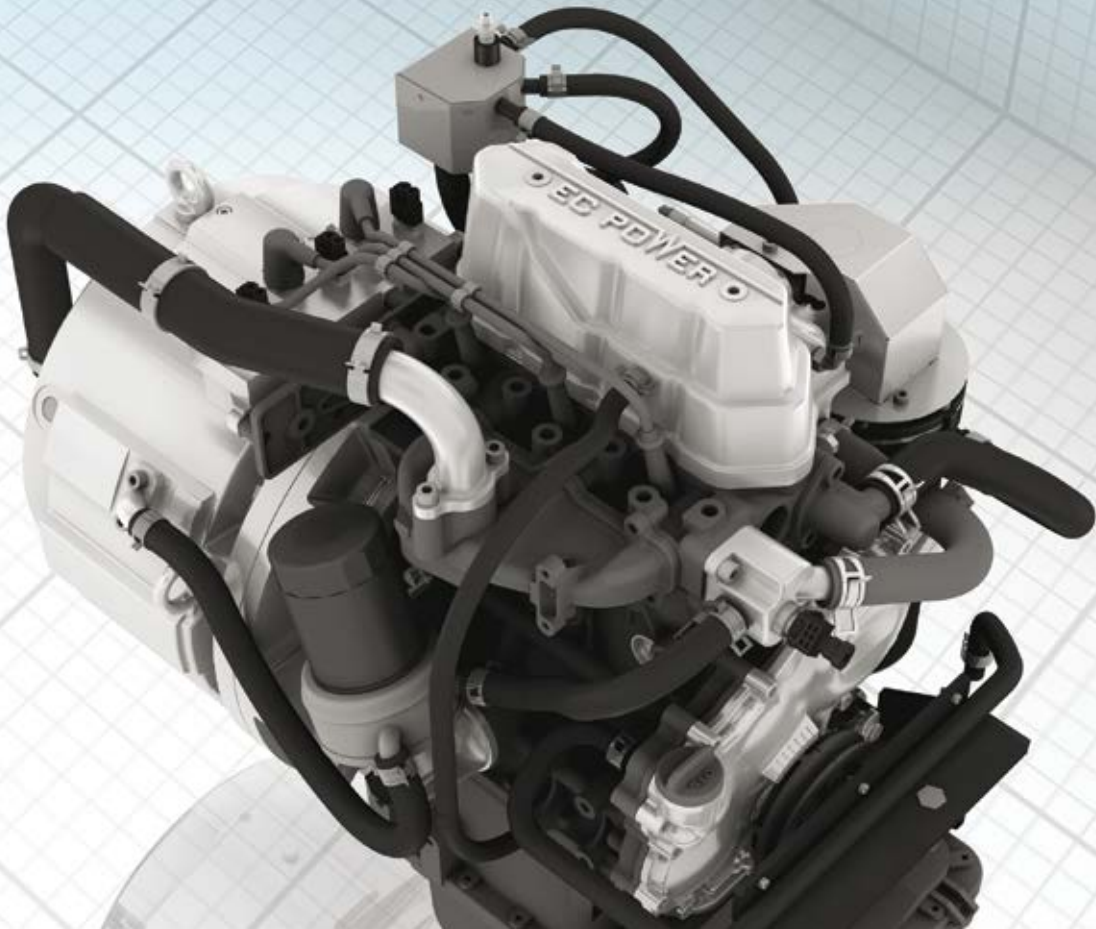
QUALITY
FROM THE
**LEADING
MANUFACTURER**

**PROMOTED
AND
FUNDED**

WHAT MAKES THE XRGI® SO SPECIAL?

Overall efficiency rate of up to 96%, service intervals of up to 10,000 operating hours, certified and award-winning technology and, above all, its unique energy management technology for maximum efficiency speak for themselves. And most importantly: many years of satisfied customers.

Since it was established in 1996, EC POWER has grown to become the technologically leading European producer of combined heat and power plants ranging from 3 to 80 kW_{el}. More than 20 patents are testament to the outstanding innovative strength of EC POWER. Over 6,000 XRGI® systems have already been sold in 27 European countries.





Max. noise level dB(A)	49	49
Dimensions (L x W x H) cm	92 x 64 x 96	92 x 64 x 96
Floor area m ²	0.59	0.59
Weight kg	440	440
Service interval operating hours	10,000	10,000
Fuels: natural gas (all qualities), propane, butane	yes	yes
Electrical output (modulating) kW	2.5-6	4-9
Thermal output kW	8-13.5	12-20
Power consumption (gas) kW	21	31
Electrical efficiency	29.5%	29.5%
Thermal efficiency (excluding optional condenser)	63.5%	63.5%
Total efficiency (excluding optional condenser)	93%	93%
Flow temperature (constant) °C	80-85	80-85
Max. return temperature (variable) °C	5-75	5-75
Maximum exhaust gas temperature °C	100	100
Emissions mg/Nm ³	CO: < 150/NO _x : < 350	CO: < 50/NO _x : < 100
Primary energy saving PES (excluding optional condenser)*	25.8%	25.8%

* EU directive 2004/8/EG

All values are net and have been certified by an independent inspection body.

15

20



49	49
125 x 75 x 111	125 x 75 x 111
0.93	0.93
700	750
8,500	6,000
yes	yes
6-15	10-20
17-30	25-40
49	62.5
30%	32%
62%	64%
92%	96%
80-85	80-85
5-75	5-75
120	120
CO: < 150/NO _x : < 350	CO: < 50/NO _x : < 100
22.0%	29.1%



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