



Power Solutions Division

Hybrid-Renewable Modular Microgrids



Power Solutions Division

Bergen Engines | Marelli Motori | Piller Power Systems

There's an immediate need to increase the penetration of renewables in the energy transition to net zero. Keeping to the 1.5°C safe upper limit for global warming demands that 90% of electrical energy is produced by renewables by 2050.

A global surge in electricity demand, increasingly intermittent power from renewables and more unpredictable weather patterns point to the need for intelligent, integrated deployment of green energy sources. Hybrid-renewable modular microgrids present themselves as the ideal solution to meet these needs.



Power Solutions Division.

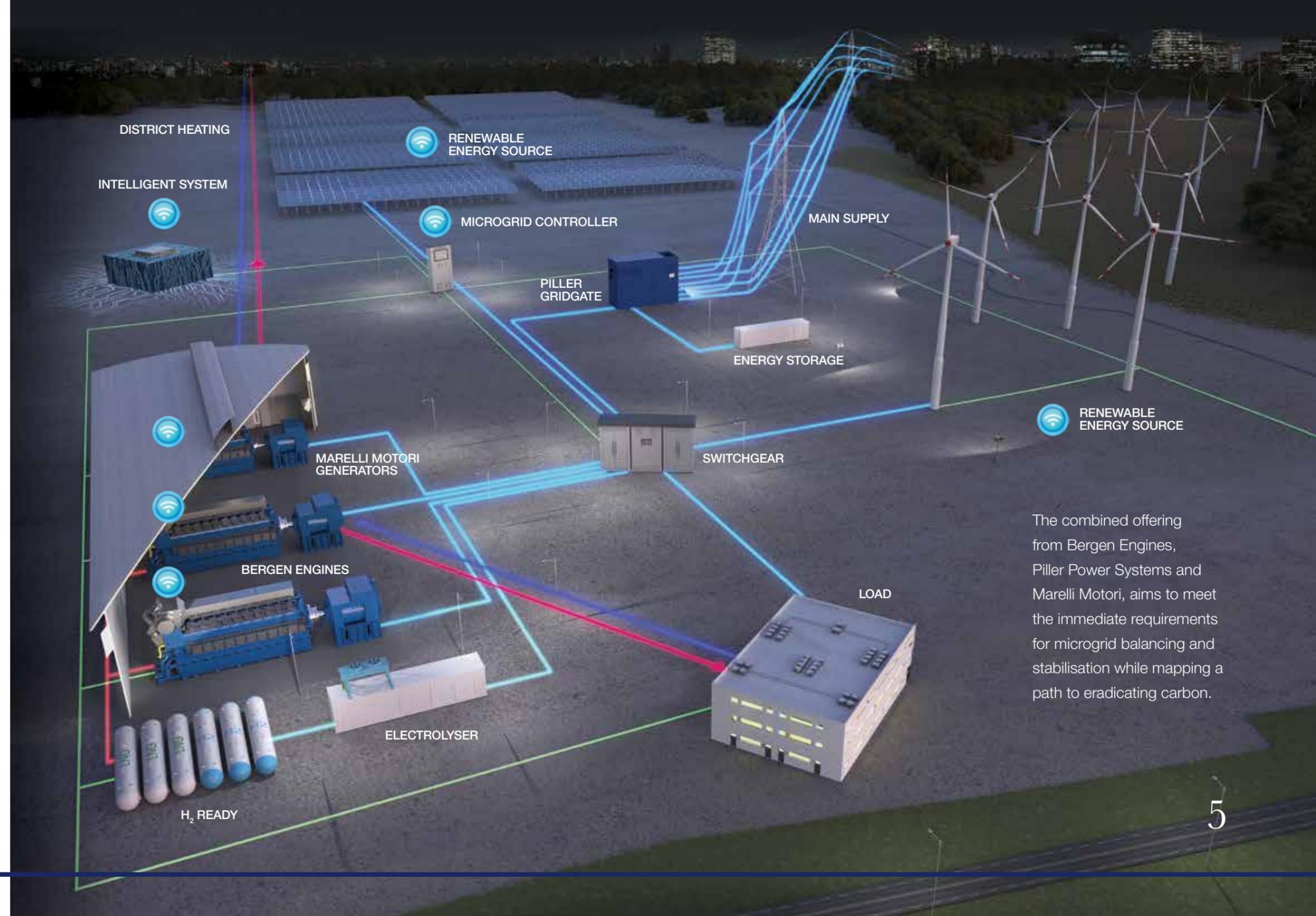
Your partner in hybrid microgrid technologies.

The Langley Holdings' Power Solutions Division is a hybrid-renewable microgrid collaboration between three of the world's most respected engineering manufacturers to meet immediate and future microgrid requirements and help map that path towards meeting the world's carbon targets.

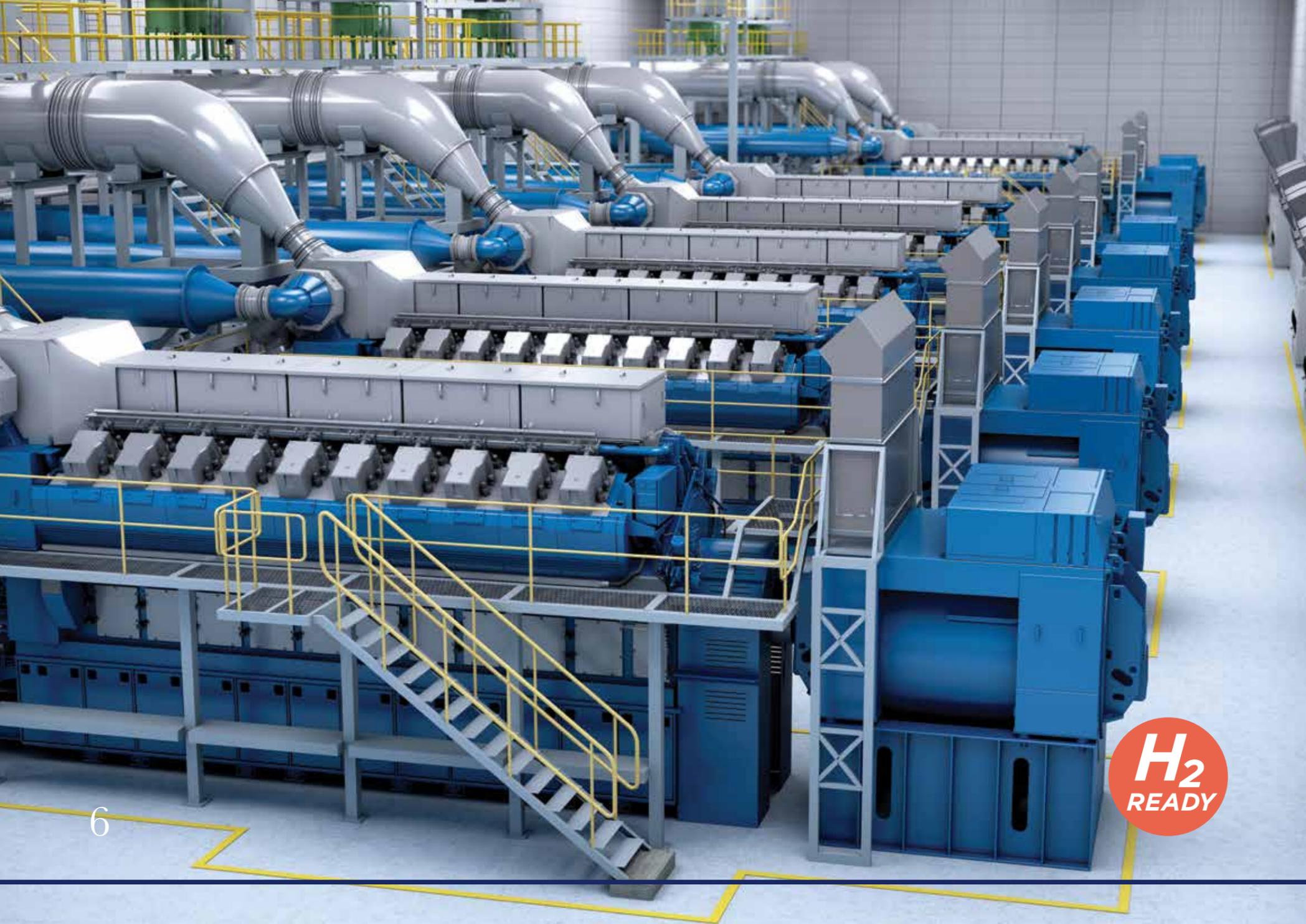
Bergen Engines from Norway, Marelli Motori from Italy and Piller Power Systems from Germany create a partnership able to support many aspects of microgrid implementation and ongoing management, including the immediate requirements for balancing power and stabilisation.

H₂-ready combustion engines from Bergen Engines, incorporating Marelli Motori alternators, can start up fast and maintain high efficiency levels at part-load operation, always keeping emissions and fuel consumption low. Piller's stabilisation and storage systems make it possible to optimise the various power sources in a microgrid, thereby reducing investment and operational costs.

The combined offering will ensure flexible, reliable and cost-effective power supply at all times.



The combined offering from Bergen Engines, Piller Power Systems and Marelli Motori, aims to meet the immediate requirements for microgrid balancing and stabilisation while mapping a path to eradicating carbon.



Bergen Engines

Medium-Speed Engines | Founded 1855



Bergen Engines is a leading manufacturer of medium-speed liquid and gas-fuelled engines and generating sets for a broad range of marine and land-based power generation applications. Due to the engines' high availability and efficiency levels, combined with excellent capability to meet quick and frequent load changes, they are a perfect match for intermittent renewable energy that needs balancing power.

The Norwegian roots of Bergen Engines can be traced back to 1855, and the Bergen name has since become synonymous for quality and reliability.

Every Bergen engine is still manufactured at the 21,500m² factory at Hordvikneset in the western Norway, and is supported by a global service network and subsidiaries in nine countries. The well-invested manufacturing and R&D facilities include a foundry,

machine shop, assembly area, paint shops, full-scale testing area and a service workshop.

Bergen Engines is a noted innovator in its field and has recently launched a comprehensive test program to develop zero carbon emission engines, allowing a gradual transition from natural gas to 100% green hydrogen, as and when it becomes commercially available. The plan is to develop a retrofit solution that will accept hydrogen content of up to 60% and solutions that can be further developed to accept 100% for new engines to come.

A Rolls-Royce plc company since 1999, Bergen Engines was acquired by Langley on 31st December 2021.

bergenengines.com

A perfect match for intermittent renewable energy that needs balancing power



Marelli Motori

Motors & Generators | Founded 1891



MarelliMotori
Powering the future®

Marelli Motori is a leading manufacturer of electric motors and alternators. Founded in 1891 and headquartered near Vicenza, in northern Italy, the company enjoys worldwide brand recognition in the marine, oil & gas, power generation, co-generation, hydro and other industrial sectors.

Marelli Motori operates an extensive manufacturing facility in Italy with subsidiaries in the United States, Germany, South Africa and Malaysia and has an extended sales, distribution and service network across four continents, supplying its technologically advanced products in more than 120 countries.

With over 130 years of experience and manufacturing excellence, Marelli Motori is always able to produce rapid solutions in this challenging market, offering a complete range of Low, Medium and High voltage alternators and motors.

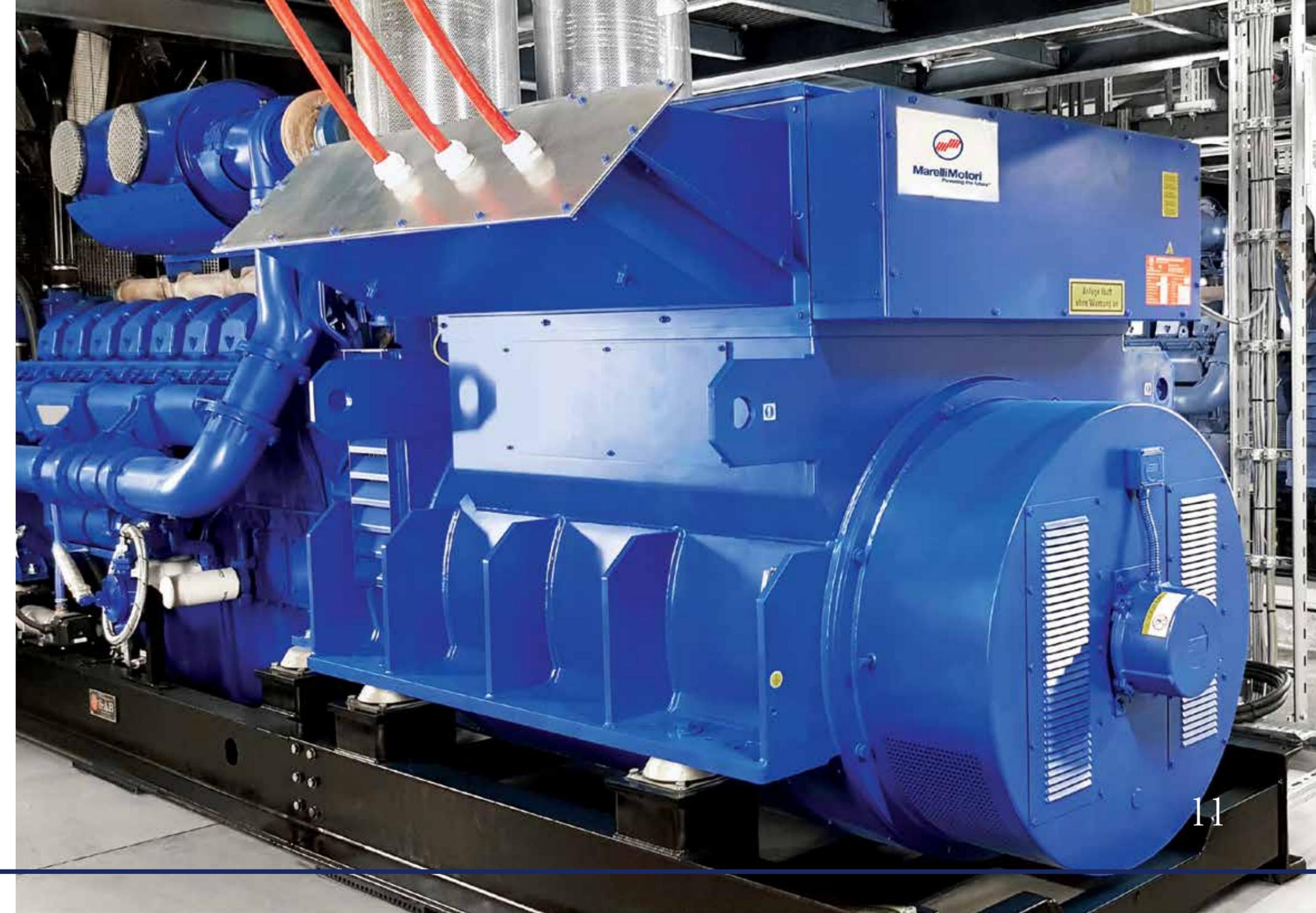
The comprehensive selection of synchronous and asynchronous machines has been specifically designed to match the diverse requirements and need of customers, providing state-of-the-art solutions backed by outstanding application expertise. The proven quality of Marelli Motori products is achieved by their reliability, superb efficiency and high performance over many years.

Marelli Motori alternators are paired with Bergen engines, a perfect match in terms of premium quality and supreme reliability.

The Marelli Motori group was acquired by Langley Holdings in 2019.

marellimotori.com

Superb efficiency and
high performance over many years





Piller Power Systems

Power Stabilisation & UPS Systems | Founded 1909



Piller is a world-leading producer of power conditioning equipment, uninterruptible power supply systems to mission-critical power applications and the only company to produce a range of rotary UPS and static UPS technologies encompassing kinetic energy storage systems or batteries, ground power units and 50/60Hz frequency converters.

Founded in Hamburg in 1909 by German engineer Anton Piller, the company currently employs around 1,000 people worldwide, with subsidiaries across Europe, the Americas and Australasia. Its purpose-built manufacturing and R&D facilities are complemented by a state-of-the-art assembly and testing plant at nearby Bilshausen.

As the energy industry looks to decarbonise and work towards a more sustainable future, Piller continues to respond with power conditioning solutions that are efficient, adaptable to any load profile, system configuration or ride through requirement.

For hybrid renewable microgrids, Piller stabilisation and storage can be used to manage fluctuations and complete gaps in wind and solar energy provision, ensuring the smooth and managed flow of power around the grid.

Acquired by Langley in 2004, Piller is headquartered at Osterode am Harz, near Hanover, Germany.

piller.com

Power conditioning solutions
that are adaptable to any load profile

Meeting the challenges on the road to net zero.

As self-sufficient and increasingly more sustainable energy systems, the benefits of microgrids are becoming recognised everywhere. Incorporating renewables such as solar and wind with dispatchable balancing power from reciprocating combustion engines and energy storage options, the hybrid microgrid makes it possible for organisations and communities around the world to move closer to their sustainability targets.

The combined microgrid offering of Bergen Engines, Marelli Motori and Piller Power Systems ensures a reliable power solution that enables an increased penetration of renewables in the electricity supply system. Microgrids are a resilient solution to the typical challenges that come with national grids, such as power outages, patchy and unstable renewable supply, and energy losses.

Hybrid microgrids are fast to deploy, with lower transmission losses bringing greater efficiency. Their hybrid nature, with the ability to utilise such embedded assets as standby generator sets, battery and kinetic storage systems help deliver optimum system flexibility.

The hybrid microgrid consists of an intelligent mix of energy sources, that are balanced smoothly, ensuring steady power supply, with minimal fluctuations, minimal emissions and virtually zero outages.

The Power Solutions Division of Langley Holdings brings together three of the world's most respected engineering manufacturers, drawing on their vast innovative expertise to enable societies around the globe to reap the full benefits of hybrid-renewable modular microgrid systems.





Global sales, installation and service network

bergenengines.com | marellimotori.com | piller.com

POWER SOLUTIONS
A Langleys Holdings Division

Scan the QR code to find out more about Power Solutions Division.

