



**GENESAL
ENERGY**

Pure Energy

Protecting what matters most with reliable energy

Tailored energy solutions for
critical infrastructure

GENERATOR SETS FOR THE DATA CENTRE

GENESAL EXPLAINED

Who are we? Energy engineering with a global vision

Genesal Energy **designs and manufactures advanced, tailor-made energy solutions**, created to ensure continuity in the most demanding environments. With more than **30 years of experience**, we have made **reliability, customisation, innovation and sustainability** the cornerstones of our strategy.

With a presence in over **40 countries**, we are a comprehensive partner delivering turnkey projects, from the study phase to after-sales support.



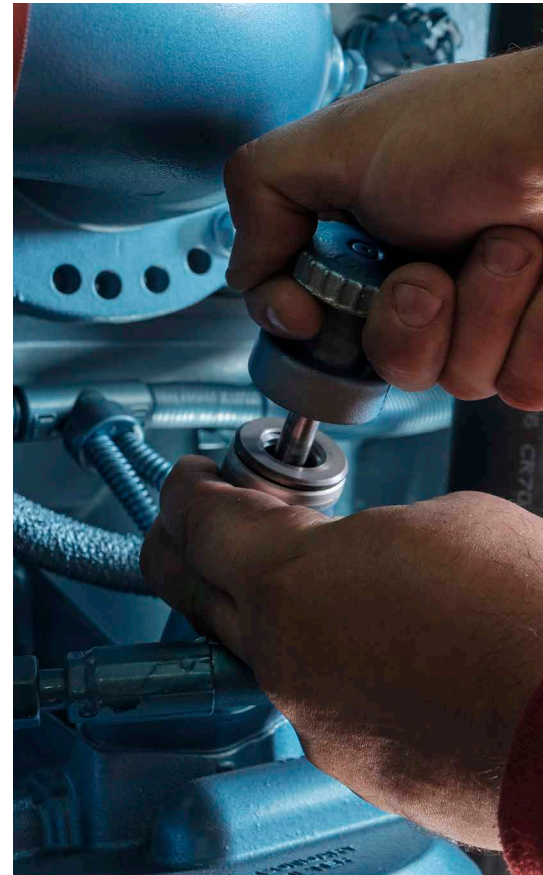
More than 20 electrical and mechanical engineers designing innovative solutions.



Over 70% of turnover from bespoke & special projects.



Three decades earning and maintaining the trust of our clients.



Our own industrial and technological centre, Generlab

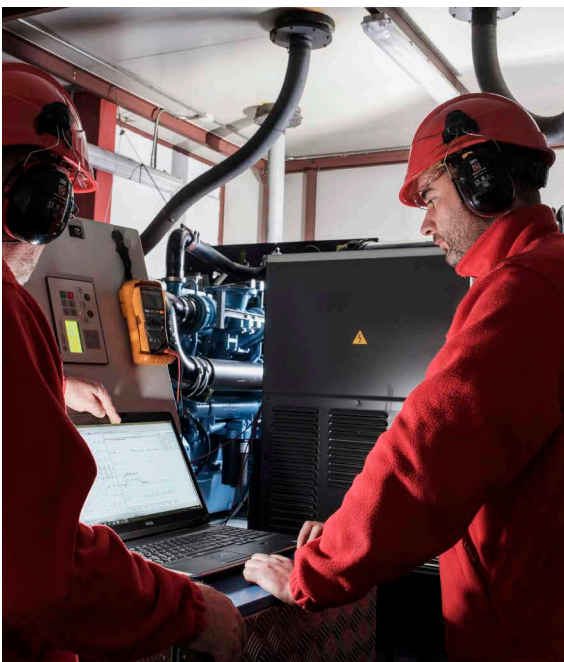
The beating heart of our innovation, a laboratory where we develop new technologies and move towards a more sustainable energy model.

Genesal Energy's response to the challenges of Data Centres

— Data Centres are the backbone of the digital economy. They host information of high strategic value, and any power outage can compromise both security and service continuity.

In a sector growing exponentially and demanding total reliability, efficiency, sustainability and technological integration, **Genesal Energy delivers tailor-made solutions designed** to meet the needs of today's and tomorrow's Data Centres.

Wherever secure and stable power is required, we are there.



Extreme reliability

Uncompromising reliability is the foundation of our Data Centre solutions. To guarantee this level of security, all equipment undergoes a **rigorous and customised testing process**, both at our factory (FAT – Factory Acceptance Test) and at the client's site (SAT – Site Acceptance Test), Genesal Energy provides Data Centres with total peace of mind, via a power supply that leaves no room for error.

Total customisation

We adapt to the specific acoustic, spatial and operational requirements of each facility.

Our engineering teams develop equipment that incorporates: advanced soundproofing, side-by-side assembly, radiators or air coolers depending on the project, power lock connections, fuel filtering & transfer systems, and internal or external tanks providing the requested autonomy.

Every design is unique – just like every Data Centre.





Competitive lead times

Meeting deadlines is as important as the technical reliability of the equipment itself. In a sector where time is critical, **we offer the fastest delivery times in the high-power segment**, ensuring availability within the agreed schedule. This is possible thanks to efficient project management, extensive experience in critical sectors and a well-established international supplier network.

Comprehensive support

Genesal Energy's value does not end with the manufacture of a genset. From the initial consultancy during the study and design phase, through bespoke engineering and production with advanced validation protocols, to installation and commissioning – **every stage is overseen by a specialised team.**

Certified sustainability

Sustainability is an essential part of Genesal Energy's identity and is tangibly reflected in every project. With this approach, **the Data Centres that rely on us not only comply with regulations** but also make real progress towards their own energy transition objectives.

From theory to practice: our technical capability

Genesal Energy knows that the difference between a conventional solution and **a trusted solution for a Data Centre lies in the technical details.**

That is why we turn our experience into measurable and verifiable results, integrating innovation, precision engineering and validation protocols that go beyond standard practice.

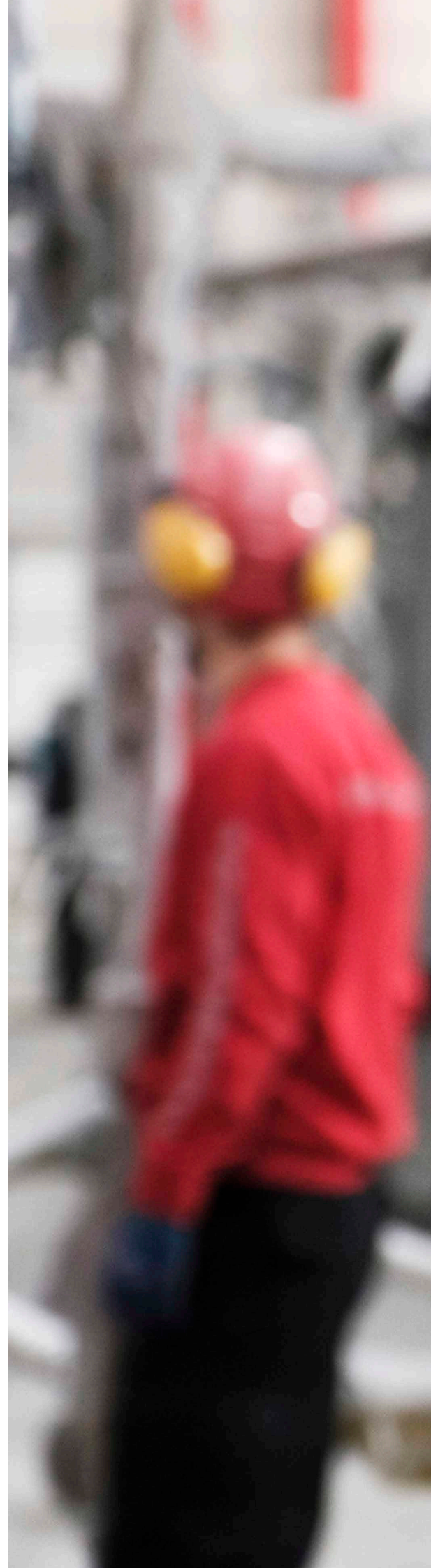
Below, we list the capabilities that make our gensets the ideal response for critical infrastructures.



Reliability and technical differentiation

Reliability is not only about installed power – it is also about the quality and design of every single detail. Genesal Energy incorporates advanced backup systems that ensure uninterrupted power supply, even under the most demanding conditions:

- **Redundant starting motors,** batteries and controllers.
- **Start-up in under 10 seconds** thanks to engine pre-heating systems.
- **Installation of large-scale** gensets in multi-storey structures.
- **Tailor-made cooling and ventilation systems** designed to adapt to confined spaces and extreme conditions.
- **Airflow and ventilation studies** for facilities with a high concentration of units in reduced spaces.
- **Alternators with PMG** (Permanent Magnet Generators) to minimise the impact of non-linear loads and prevent harmonics.
- **Advanced control panels with PLCs and customised HMI interfaces,** providing operators with intuitive, user-friendly control.



Testing and validation

Every single genset undergoes a validation process that goes far beyond conventional industry testing. We do not simply verify that the equipment works – we demonstrate that it will perform under extreme conditions with zero tolerance for failure:

- **Test bench evaluations** pushing equipment to maximum capacity.
- **Extended uninterrupted** operation trials to verify thermal and mechanical stability.
- **Fault simulation** in key systems (engine, alternator, controls).
- **Cold start tests** to confirm availability under adverse environmental conditions.
- **Verification of all electrical protection systems** in accordance with ANSI standards.

Sizing for Data Centres

Proper sizing is essential to ensure efficiency and continuity:

- **Typical loads:** fire protection, UPS, cooling and HVAC, lighting.

Power standards:

- **COP (ISO 8528-1):** continuous operation at 100% rated load, with engine oversizing.
- **DCC (Data Centre Continuous):** continuous operation at 100% with statistical starting and fault criteria, optimising both size and efficiency.

Integration and cybersecurity

Genesal gensets are not standalone units – they are fully integrated within the digital and operational ecosystem of the Data Centre:

- **Compatibility with leading communication protocols:** Modbus RTU / TCP-IP, SNMP, IEC 61850.
- **Signal exchange options** to trigger protections and alarms on-site.
- **Direct integration with BMS** (Building Management System) **and SCADA** platforms, with real-time monitoring and configurable alarms.
- **Compliance with sector-specific cybersecurity** requirements, safeguarding the communications network connected to the gensets.

Power and Tier compatibility

The Uptime Institute's TIER classification defines different levels of availability for Data Centres. Genesal Energy designs gensets ready to integrate into the most demanding infrastructures:

- **Units up to 5250 kVA**, designed under criteria of maximum reliability and continuity.
- **Integration into Tier III** (fault-tolerant, N+1, ≥ 72 h autonomy) **and Tier IV** (2N+1 full redundancy, ≥ 96 h autonomy) architectures.
- **Engines with DCC** (Data Centre Continuous) certification, capable of continuous operation at full rated power.

Optional configurations

— Every Data Centre has unique requirements. Genesal Energy develops advanced configurations to maximise equipment versatility:

- **Synchronisation between gensets and/or with the grid:** parallel operation or grid connection.
- **Cross-redundancy between gensets and UPS systems:** ensuring total availability.
- **Peak shaving functions:** gensets supporting the grid during demand peaks, optimising costs and operational efficiency.
- **Containerised outdoor installation:** transportable, ready-to-install solutions with customised acoustic and environmental protection.
- **Advanced monitoring:** control integration via webserver, Modbus TCP/IP or SNMP, enabling remote supervision and management of critical parameters.
- **UPS, batteries and transfer systems in single or dual-plant configurations:** uninterrupted power supply and automatic transfers keeping critical loads constantly protected.
- **Custom SCADA for multi-genset facilities:** centralised supervision systems ensuring coordinated management of all operating equipment.
- **Programmable, flexible start-up:** gensets configured for automatic weekly testing, responding to external commands, or instant activation upon grid failure.

After-sales service and global support

A Data Centre project does not end at delivery:

- **24/7 multi-brand SAT:** specialised service available anytime, anywhere, with qualified technicians and international reach.
- **Preventive and corrective maintenance:** programmes specifically designed for Data Centres, anticipating failures and reducing downtime.
- **Remote monitoring and telemanagement:** advanced tools guaranteeing constant supervision of critical parameters and enabling proactive response.
- **Comprehensive support:** consultancy from offer and design phase, on-site assistance during installation, commissioning supervision, and rapid supply of original spare parts.



COMMITMENT TO SUSTAINABILITY

Sustainability and Ecodesign in Data Centres



Sustainability is a cross-cutting commitment at Genesal Energy and an essential pillar in the design of solutions for Data Centres. We know that Data Centres are major energy consumers and that reducing their environmental footprint is a global challenge.

That is why we integrate ecodesign principles, technological innovation and sustainable fuels, anticipating regulations and aligning with energy transition objectives.



Regulatory Compliance

- **ISO 9001:2015** Quality management.
- **ISO 45001:2018** Occupational health and safety management.
- **ISO 14001:2015** Environmental management.
- **ISO 56001:2024** R&D&I Management system certificate.
- **ISO 14006:2020** Ecodesign Management.
- **MITECO REGISTER** Certificate of Registration in the Carbon Footprint.

Ecodesign

We are proud to be the first company in the energy sector to obtain ISO 14006 (Ecodesign) certification and to implement it efficiently in our production system. This achievement enables us to optimise multiple aspects of our equipment to reduce environmental impact:

- **Life Cycle Analysis (LCA):** assessing environmental impacts from raw material sourcing to end-of-life.
- **Sustainable materials selection:** preference for recycled and recyclable materials, reduction of plastics and high-impact metals.
- Logistics optimisation and local suppliers to cut emissions.
- **Additive manufacturing (3D printing):** optimising designs and minimising waste.
- **Use of sustainable fuels (HVO)** during testing, reducing clients' Scope 3 carbon footprint.



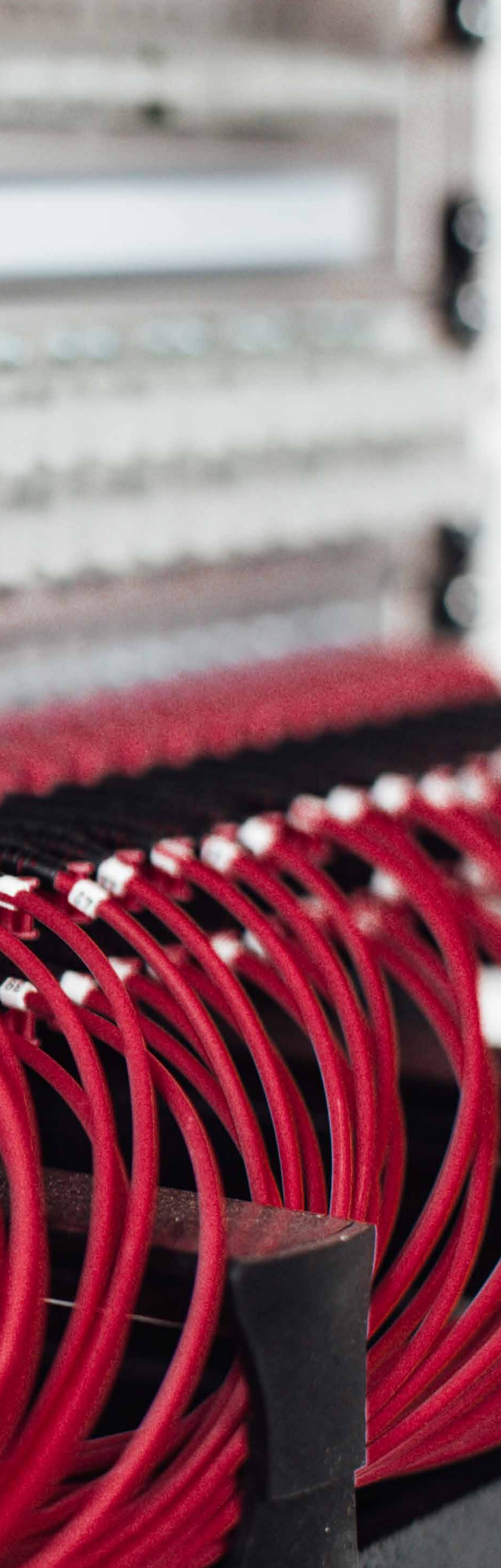
Decarbonisation and new fuels

- HVO-ready equipment; internal compatibility tests (engines, injection, filters) with external laboratory fuel verification.
- Technical note: HVO compliance is certified by the fuel supplier, and engine suitability by the manufacturer; our tests provide clients with dual verification.
- R&D projects with hydrogen, plus assessment of alternative fuels.

Emission reduction and efficiency

- Passive filtration systems (Diesel Particulate Filter, DPF): effectively capturing and reducing particulate matter (PM) from diesel engines, improving air quality and supporting compliance with environmental regulations in urban or sensitive areas.
- Active Selective Catalytic Reduction systems (SCR with urea injection): advanced technology that significantly minimises nitrogen oxide (NOx) emissions. This system adapts to varying load conditions, maintaining efficiency without compromising power.
- Hybrid diesel-renewable systems: integrating gensets with renewable sources (solar, battery storage or other clean technologies), reducing fossil fuel consumption and CO₂ emissions during low-load periods.





Projects and presence in the Data Centre sector

— Experience is the proof of a company's ability to deliver on its promises. Genesal Energy has taken part in the creation and modernisation of Data Centres across different continents, always with customised solutions tested in real environments.

Alongside our project track record, we maintain an **active presence in leading international forums and collaborate with industry associations**, consolidating our role as a benchmark in energy supply for Data Centres.

Gensets are the silent guardians of the digital society.

6xGEN2500HC

11 MW OF BACKUP POWER FOR A DATA CENTRE IN NORWAY, DESIGNED TO TIER III PRINCIPLES

Technical data

Supply: Soundproofed generator in a 40' HC container

Prime Power: 6x2,250 kVA

Standby Power: 6x2,500 kVA

Voltage: 400 / 230 V

Frequency: 50 Hz

Engine: Mitsubishi

Alternator: Leroy Somer



The high level of specialisation required by Data Centre gensets demands cutting-edge engineering and highly experienced personnel. At Genesal Energy, both factors come together – making our projects highly sought-after in the sector.

Engineering solution: six soundproofed gensets housed in 40'HC container, each rated 2,250–2,500 kVA, prepared for continuous parallel operation with the grid. Due to site requirements, two gensets were designed with power output on the right-hand side and four gensets symmetrically aligned with output on the left-hand side, facilitating installation of the power cabling.



Location
Norway



Supply
6xGEN2500HC



Client requirements
Among the many needs of this project was heat recovery via a heat exchanger integrated into the engine heating circuit.

Key features

- Connection for fuel transfer from an external tank.
- High-capacity fuel filtration system.
- Chequer-plate flooring inside the container.
- Dual starting motors.
- Dual battery sets.
- Motorised air inlet and outlet louvers.
- Integrated heat exchanger on the base frame for energy recovery.

2xGEN2750HC

UNFAILING ENERGY FOR A RAILWAY DATA CENTRE

Technical data

Supply: 40' HC container

Prime Power: 2x2,500 kVA

Standby Power : 2x2,750 kVA

Voltage: 400 / 230 V

Frequency: 50 Hz

Engine: Mitsubishi

Alternator: Mecc Alte



Modern railway traffic management requires real-time control of train positions, ticket sales and changes, monitoring delays, and detecting incidents. In such a context, any failure could have serious consequences for the network and passenger safety.

Our client turned to Genesal Energy to guarantee the power supply to a major Data Centre for the railway sector.

Engineering solution: two 2,750 kVA gensets integrated into 40'HC containers, fitted with rooftop air coolers and vertical exhaust systems. The control room was integrated within the solution, designed with low acoustic levels to comply with strict noise regulations.



Location
Spain



Supply
2xGEN2750HC



Client requirements
Two gensets with sufficient capacity to meet the demand of each of the two networks within the facility, providing redundant protection.

Key features

- 40'HC container.
- Air coolers.
- Vertical exhaust system, -40 dB attenuation.
- Integrated control room.
- Busbar connection.
- Integrated 4,000 A circuit breaker.

5xGEN3300YC

FIVE GENSETS DELIVERING 3,000 kVA DCP EACH

Technical data

Supply: Soundproofed, in a special sized container

Prime Power: 5x3,000 kVA

Standby Power: 5x3,300 kVA

Voltage: 400 / 230 V

Frequency: 50 Hz

Engine: Baudouin

Alternator: Leroy Somer



This project stands out for its fully customised solution: five gensets designed and installed in a leading Data Centre in Northern Europe.

To protect the equipment, 5,000A circuit breakers and Powerlocks were installed, along with a high-capacity busbar specifically designed to simplify the client's electrical connection.

An independent cooling system was developed, featuring motorised louvres, and a fully integrated automated fire suppression system. The design also included wide access points, advanced control technologies and components prepared for harsh environmental conditions – making the installation a benchmark in the industry.



Location
Norway



Supply
5xGEN3300YC



Client requirements
Five gensets providing 3,000 kVA DCP, with very specific technical requirements.

Key features

- V-shaped air coolers designed for ambient temperatures up to 38°C at 100% load, located in a separate room to avoid air interference.
- Sound pressure level below 85 dB at 1 m, at 100% load.
- Fire detection and suppression system with Novec gas and sectorisation panels, guaranteeing EI60 fire resistance standards.

2xGEN900YI

CUSTOM EMERGENCY POWER FOR A DATA CENTRE IN RÉUNION ISLAND

Technical data

Supply: Soundproof canopy

Prime Power: 2x800 kVA

Standby Power: 2x900 kVA

Voltage: 400 / 230 V

Frequency: 50 Hz

Engine: Baudouin

Alternator: Leroy Somer



For this project, maximum reliability was non-negotiable throughout the manufacturing process.

Two gensets were designed in 5,500 mm soundproofed enclosures, with an additional 2,200 mm module assembled on-site. Once combined, each unit formed a single block over 7,700 mm long. In response to the client's need to integrate a 4,000 L fuel tank within the structure, the additional enclosure was specifically developed.



Location
France



Supply
2xGEN900YI



Client requirements
Design and delivery of two special gensets to guarantee continuous operation of the Data Centre under any circumstances.

Key features

- Above-ground double-wall steel fuel tank, 4,000 L, fully certified.
- Fuel leak detector.
- Manual external engine fuel shut-off valve.
- Air outlet ducts to vent upwards.
- Remote annunciator with 16 alarms.
- Key switch for selecting emergency or normal controller.

GEN550PC + GEN850PC

EMERGENCY POWER FOR ONE OF EUROPE'S LEADING DATA CENTRES

Technical data

Prime Power: 500 / 770 kVA

Standby Power: 550 / 850 kVA

Voltage: 400 / 230 V

Frequency: 50 Hz

Engine: Perkins

Alternator: Mecc Alte



Genesal Energy provided bespoke gensets designed to meet stringent requirements. The result was two units notable for their ultra-low noise levels – essential given their location within a large office complex – and for compliance with strict German environmental legislation on liquid containment.



Location
Germany



Supply
GEN550PC + GEN850PC



Client requirements
Low-noise gensets located in the middle of an office area.

Key features

- Power panel integrated into the same soundproofed container as the genset.
- Control panel integrated into the same soundproofed container.
- -30 dB baffle system, external stainless-steel finish.
- Motorised louvres.
- Large-capacity internal fuel tanks.
- Container with full liquid retention system (fuel, oil, coolant).

2xGEN1250T

EMERGENCY POWER FOR A DATA CENTRE IN MADRID

Technical data

Supply: Soundproofed in canopy

Prime Power: 2x1,130 kVA

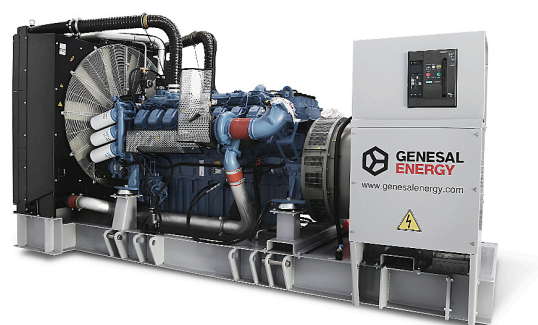
Standby Power: 2x1,250 kVA

Voltage: 400 / 230 V

Frequency: 50 Hz

Engine: MTU

Alternator: Leroy Somer



We designed two special gensets to meet the specific needs of this Data Centre. Both units were mounted on bespoke base frames compatible with the client's existing structure, which had supported obsolete equipment for nearly 20 years.

Genesal Energy handled all logistics and permits, including municipal authorisations and road closures, as well as transport, loading and unloading.



Location
Spain



Supply
2xGEN1250T



Client requirements
Transport and installation of customised gensets to provide emergency power.

Key features

- Units configured for parallel operation.
- 2,000A motorised circuit breakers.
- Fuel tank level sensors for external transfer operation.
- Modbus RS-232/485 communication modules.
- Remote alarm contacts.
- Coolant recirculation and heating system with circulation pump, ensuring correct engine temperature at start-up.

GEN1000TC

TURNKEY SUPPLY OF A 1,000 kVA GENSET FOR A BARCELONA DATA CENTRE

Technical data

Standby Power: 1,000 kVA

Voltage: 400 / 230 V

Frequency: 50 Hz

Engine: Perkins

Alternator: Mecc Alte



Genesal Energy supplied not only the machine but also the full project management: delivery logistics, street closure, heavy-lift crane for placement, power cable connection verification, alarm cabling to the building's central system, exhaust gas ducting, and load testing.

All work was carried out overnight (00:00 to 06:00) to avoid disruption to the client's operations. Genesal Energy also provides ongoing maintenance, with 24/7 service and a maximum on-site response time of three hours.



Location
Spain



Supply
GEN1000TC



Client requirements
A turnkey project as part of the Data Centre's expansion.

Key features

- Configured for parallel operation with a second genset to be installed later.
- 1,600A motorised circuit breakers.
- Fuel tank level sensors for external transfer operation.
- Modbus RS-232/485 communication modules.
- -40 dB exhaust silencers to reduce noise.
- Integrated control panel.

What makes us unique in distributed energy



Technical strength, bespoke project design, integrated sustainability and international experience all rest on **one fundamental pillar: the talent and dedication of our people.**

It is our professionals – with their knowledge, commitment and capacity for innovation – who make it possible for every genset to exceed expectations and become a true guarantee of continuity for Data Centres.

Thanks to their effort and to more than three decades of accumulated experience, **Genesal Energy today stands as a company ready for any challenge**, prepared to face and overcome even the most demanding requirements with **determination, reliability and confidence.**

At Genesal Energy, energy is not only designed and manufactured: it is built every day through well-executed work.



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