

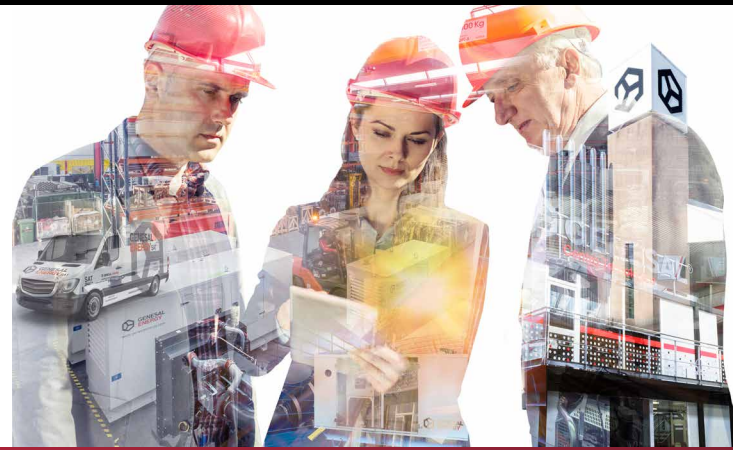


**GENESAL
ENERGY**

PROJECT
REFERENCES
2019



We put our soul into everything we do



SPAIN

Emergency power to guarantee security in a data center in Madrid

ESPAÑA / SPAIN

2xGEN1250T
CENTRO PROCESO DE DATOS /
DATA CENTER

⚡ PRP 2x1.130 kVA
⚡ STP 2x1.250 kVA

⚡ 400/230 V
⚡ 50 Hz

🏠 MTU
🔋 Mecc alte



*Comprehensive service is one of our strong points, an element that sets us apart because we offer the client the possibility to have a project that's **one hundred percent specialised** from the beginning to the end of the process, right at their fingertips.*

One of our latest 'turnkey' orders has been the delivery, set-up and installation of two 1.250 kVA gensets, model GEN 1250T, for a data centre in Madrid.

failure is a catastrophe as these types of instances can paralyze companies and risk the great amount of information they manage.

Data Centres or Data Processing Centres (DPCs) are specially designed environments which house complex and modern computer equipment, from computers to storage or network systems. They are facilities in which any electrical

For this reason, generator sets are vital in Data Centres as the service they provide must be continuous, without interruption.

SPAIN

Dual frequency and dual voltage gensets for an international construction company



Gensets that operate at different frequencies as well as different voltages are special units whose design process has been thought out and revised all the way down to the very last detail.

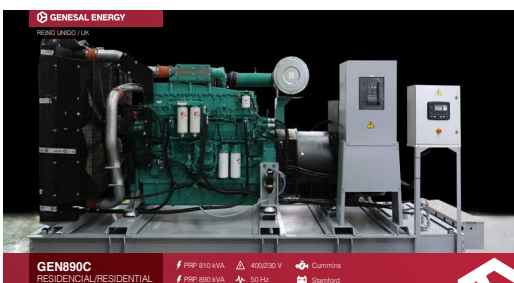
One of our latest orders comes from an international building company who needed gensets capable of being moved from one place to another and of **operating at different frequencies and voltages**, as the client has construction projects in different countries around the world.

User friendliness and high precision are Genesal Energy's trademarks!

UK

Another accomplishment by our distributors

Another accomplishment by our distributors has allowed us to supply a **900 kVA genset prepared to run parallel** to mains in one of the most luxurious areas of the UK, guaranteeing continuous electric power supply in the residential area in which it was installed.



PORTUGAL

We designed the gensets for two biomass power plants: the Viseu and Fundão power plants, in Portugal

We've designed and supplied two special gensets for two biomass power plants in Portugal: the Viseu and Fundão power plants, two twin installations which, according to experts, will prevent the emission of 88.400 Tn of CO₂ to the atmosphere. Both are a prime example of clean, renewable energy production. Biomass power plants are thermoelectric power plants that use organic matter as fuel, whether it be of plant or animal origin, susceptible to being used for power purposes. These installations generate electricity through the combustion of the biomass to heat the steam in boilers. The steam, in turn, moves a turbine which spins a generator, which transforms the electric power into mechanical power.



TECHNICAL FEATURES

- Remote control panel in the installation's electrical room 1000 L base frame fuel tank
- Fuel filler neck on the outside of the container
- Installation in a 20" soundproof container with an air outlet silencer to achieve a sound level of 85dB at 1 metre
- Communication via MODBUS TCP/IP with power plant control system
- Integrated web server with access from the power plant's control system
- Genset load system in a sequence of up to 14 steps.

JAMAICA



We supplied two “turnkey” generator sets to the biggest combined-cycle power plant

The biggest combined-cycle power plant in Jamaica is located in the Old Harbour Bay fishing port and it's a magnificent engineering project which we've contributed to with the design and supply of two special gensets, an **emergency 1,100 kVA unit** and a **Black Start 2,200 kVA unit**.

Both sets were developed in our headquarters and were custom made following the requests of our client, who asked for the gensets to be managed, controlled and monitored from the genset's own control panel.

We continue to innovate to offer you the most special energy!



NORWAY

Emergency gensets for the railway sector

Thanks to the projects in the railway sector carried out by our distributors, we've supplied an emergency generator set to **guarantee power supply to a tunnel** in the case of a mains failure, allowing for continuous operation of the lights, emergency telephones and fans, as well as other critical services.



UK

Emergency generator set to provide power to a Data Center

We already know that the presence of generator sets in data centres and communications companies is critical. Our distributors are aware of this, and they've trusted GENESAL ENERGY to supply an emergency genset that will guarantee power supply in the main building of one of the **most important telecommunications companies in Europe**.



MEXICO

Supply of two generator sets for a photovoltaic power plant



With a capacity of 170 MW, the Santiago photovoltaic power plant is located in the state of San Luis Potosí (Mexico). It's a large complex, whose construction began in 2017 with the participation of 1.000 workers. The power plant was built with the idea of **supplying enough electricity to power 138.000 homes**.

We've participated in this megaproject through the design and supply of **two generator sets of 220 and 462 kVA, 220-127 Vac at 60 Hz**, prepared to operate in the area's special conditions, such as the semitropical climate.

Both units were manufactured in Genesal Energy's headquarters, located in the town of Bergondo, in A Coruña (Spain), with the goal of guaranteeing the correct operation of the booster and switching substations during emergency situations, providing the power necessary for the auxiliary services, emergency lighting, etc.



SPAIN

Supply, delivery and installation of a 1,000 kVA generator set for a Data Center

Our commitment to our clients begins with the **design and manufacture of the generator set**, but it doesn't end there. We also take care of the supply, delivery and installation, even when the genset's large dimensions call for the use of heavy-duty cranes. In these cases, logistics management is key so that everything turns out right.

In Barcelona, we've just supplied a **1,000 kVA emergency genset in a 20'HC container for a Data Center**. All of the logistics: the cutting-off of the street, to the installation, power verification and cabling connection... all done by Genesal Energy, in six hours, in the early hours of the morning.

We're always where we're needed!



ALEXANDER BLANCO
Operations Management Department

“Our success is based on, above all, our versatility.”

As you’ve made it known to the public, 2018 has been a very positive year for the company both in the international as well as the domestic market. What is Genesal Energy’s success based on?

From my point of view, our success is based on, above all, our versatility. In Genesal Energy we advise our customers, we assist them from the beginning because not only do we manufacture gensets, we also carry out “turnkey” projects which means we’re on top of everything during the whole process. We design and manufacture custom-made units, we take care of the installation, commissioning and subsequential maintenance works. I think that’s the key. While other big companies only manufacture, for us, the process starts when the client has an energy requirement and lets us know about it, and from that moment onwards we assist them, advising them and accompanying them at all times.

Our link with the client doesn’t end in the factory. In reality, at Genesal Energy we’re really devoted to a comprehensive and highly personalised service. We don’t believe in the concept of mass production. Every sale the sales department closes we take on as a personalised project and a relationship of trust.

What perspective do you have for 2019?

We want to continue growing. 2018 was a very good year, the company took a great leap forward. For this reason our goals are centered around at least maintaining the levels achieved in the last fiscal year, where turnover grew 40% from 2017. The objective is to maintain these numbers, to consolidate them and to continue in the path of continuous and sustained growth.



Alex Blanco: *“We don’t believe in the concept of mass production. For us, each sale is taken as a personalised project and a relationship of trust.”*

This year you’ll be launching the new canopies by ranges. What will be their main features?

We’re finalizing the development of the first model of the new canopies so that the client, when they receive our gensets, perceive great quality. We’ve wanted to take it a step further and improve key aspects like utility and maintenance without them having an impact on the cost.

The new canopies will adapt better to our our new production systems. In Genesal Energy we install different brands, both in the realm of engines and alternators and now, with this new generation of canopies, the sound attenuation of the gensets will improve and maintenance works will be simplified. This improvement has been promoted by the experience we’re acquiring not only in our own market, but also in other external markets where the requirement levels are higher, by taking note of this and trying to achieve excellence.

Offering a comprehensive service to your clients also contributes to the success of this company. What does this service entail?

We offer complete support to the client: telephone assistance, in situ, we visit their site, we take care of the set-up of the genset in any type of installation. We respond to any of their technical queries. On the other hand, once they’ve made a purchase order, we carry out a custom-made design, we manufacture the product, we carry out tests in our headquarters in Bergondo (100% of the manufactured units are tested before leaving the factory, at 110% of the load), we send over the genset, install it, and then we carry out another test in situ. We also offer our after-sales maintenance service throughout the whole lifespan of the genset.

At Genesal Energy, we don’t leave any part of the process on the sidelines. We’re aware of every detail, from the most basic elements to the genset’s maintenance works, both in the preventive and corrective sense. And if any fault should occur, we’re always there, implementing remote maintenance systems through which we know the status of the genset in real time and are made aware of any problems that could arise, carrying out the necessary preventive actions before a mains failure could occur and the genset is no longer working. We look for excellence for our customers, we know they make large investments in machinery that costs a lot of money, so we must guarantee their correct operation.

NORWAY

Supply of two generators to a fish farm in Norway



We've supplied **two 660 kVA gensets** through our distributors in Norway, prepared to operate in parallel, which will guarantee the electricity supply of a fish farm.

POWER RANGE: GEN660P

CLIENT'S NEED: Supply power in the event of a mains failure to guarantee the operation of the electrical and water supply systems necessary for the breeding of fish, such as incubators, water circulation and transfer systems or automated machines for the feeding of the fish, amongst others.

FINLAND

We designed a mobile genset adapted to the needs of our client to start up at low temperatures

The close relationship we have with our distributors has lead us to supply a **130/142 kVA trailer-mounted genset**, with weight limitations and prepared to be moved around in unfavourable meteorological conditions.

POWER RANGE: GEN142FC

CLIENT'S NEED: To supply mobile power in the municipality of Janakkala, in the South of Finland. The client will move the integrated trailer to different buildings, fire stations and similar installations in the locality, in case of an emergency.



MEXICO

More projects in Mexico: Emergency power for Topolobampo II

Another accomplishment by our branch office in Mexico has meant we've been able to supply a 220 kVA genset under **CFE (Comisión Federal de Electricidad or Federal Electricity Commission)** specifications. Said generator set will supply power to the Topolobampo II (Sinaloa) switching substation, guaranteeing power to one of the most important ports of entry of the **mexican pacific coast**.



Generator set installed in the Topolobampo II electrical substation

SUPPLY: GEN220FC

CLIENT'S NEED: Supply power in the event of a mains failure for the switching substation's emergency components.

FEATURES

- RAL 1021 yellow canopy according to CFE specification W4700-10.
- 24v starting system.
- 4 pole & 630 A transfer system.
- Heaters in the alternator's windings.

OMAN



We continue to reinforce our presence in the middle east

Oman has immense potential in the field of renewable energies, especially solar and wind. One of our latest projects in this country consisted in the supply of a **500 kVA made-to-measure generator set** for a great wind farm.

SUPPLY: GEN500VC

CLIENT'S NEED: The GEN500VC genset had to be installed to cover the client's need of guaranteeing the wind farm's auxiliary services.

It's designed **to operate in parallel** with the mains, to withstand elevated temperatures and to guarantee the farm's auxiliary services based on the characteristics of the site itself, installation and operation. At Genesal Energy, we're able to grow in the Middle East thanks to new projects in countries such as Oman, Qatar and Saudi Arabia.

FEATURES

- Generator set prepared to operate in parallel with the mains, equipped with a motorized thermal-magnetic breaker for the genset.
- Alternator with Class B temperature rise and anti-condensation heating.
- 800 L fuel tank integrated in the base frame with leakage tray.
- Independent, approved, double-walled 4000L with an automatic fuel transfer system.
- Neutral earthing resistor to limit the earth fault current.
- Control panel heating system.

AUSTRIA

We're in Austria, the demanding central european market

100/110 kVA genset to be mounted on a trailer in Austria, for the genset fleet of an important telecommunications company.



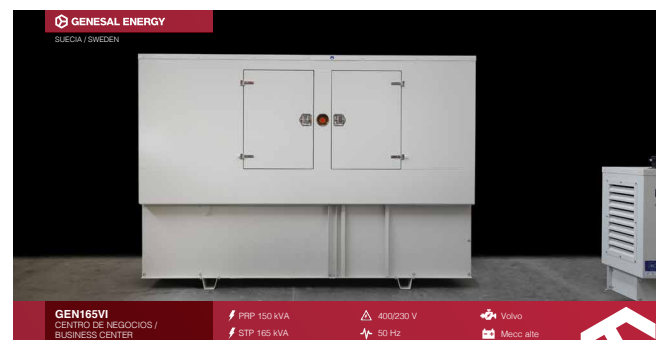
SUPPLY: GEN110FI

CLIENT'S NEED: To both supply power to telecommunication towers during maintenance tasks, as well as to work in parallel to mains when it's at the base not attending to emergencies, operating in the event of a mains failure.

SWEDEN

We take the best energy to Sweden

Europe is a strategic market and one of our latest projects has taken us to Sweden, a country in which we've consolidated our position thanks to, in great part, the gensets from our **Low Temperatures range** -prepared to operate in especially adverse conditions with thermometers hitting below zero-



SUPPLY: GEN165VI

CLIENT'S NEED: To supply power in mains failure situations for the emergency elements of an office building, such as emergency lighting, cooling...

CHAD

The Saudi Arabian Embassy in Chad is powered by Genesal Energy

The Saudi Arabian Embassy in Chad is powered by Genesal Energy, through **four generator sets designed and manufactured made-to-measure**, in two sets of two different power ratings: 1.000/1.100 kVA and 1.500-1.650 kVA respectively, prepared for parallel operation.

The four gensets are designed to **guarantee a constant and failure-free power supply, 24/7, 365**.

If ever there were to be a failure in the mains power supply, both gensets would start up; as long as loads don't exceed 80% power of one of the gensets, one of them will stay in operation, powering the loads, and the other will stop; but if the load reaches 80%, the other genset would operate in parallel with the other, powering the loads.

IN PARALLEL

Likewise, in the event of the failure of one of the gensets operating on its own, the other will start up, providing redundant operation.

As well as its parallel, redundant, power-managing system, the units manufactured by Genesal Energy for the Saudi Arabian Embassy have the particularity of including a power outlet adapted to the client's needs, constructed with a bus bar capable of holding up to four cables per phase of 630 mm² at the genset breaker's outlet.

FEATURES

- Special bus bar at the the genset breaker's outlet to hold up to four cables per phase of 630 mm².
- Parallel and redundant operation between the gensets.
- 1000 L. Schütz fuel tank with Inpro fuel transfer system.
- Recirculation and heating system for the engine's coolant in order to provide the correct temperature for start up.
- Control panel integrated in the base frame.



SPAIN

WE SUPPLIED EMERGENCY POWER TO THE HYDROELECTRIC POWER PLANTS IN THE MIÑO-SIL RIVER BASIN



 **GENESAL ENERGY**
 ESPAÑA / SPAIN

<p>3xGEN8,5KC / 2x220FC / GEN176FC CENTRAL HIDRÁULICA / HYDRAULIC POWER PLANT</p>	<p>⚡ PRP 3x8 kVA / 2x200 kVA / 160 kVA ⚡ STP 3x8,5 kVA / 2x220 kVA / 176 kVA</p>	<p>⚡ 400/230 V ⚡ 50 Hz</p>	<p>🔧 FPT / Kholer 📦 Mecc Alte</p>
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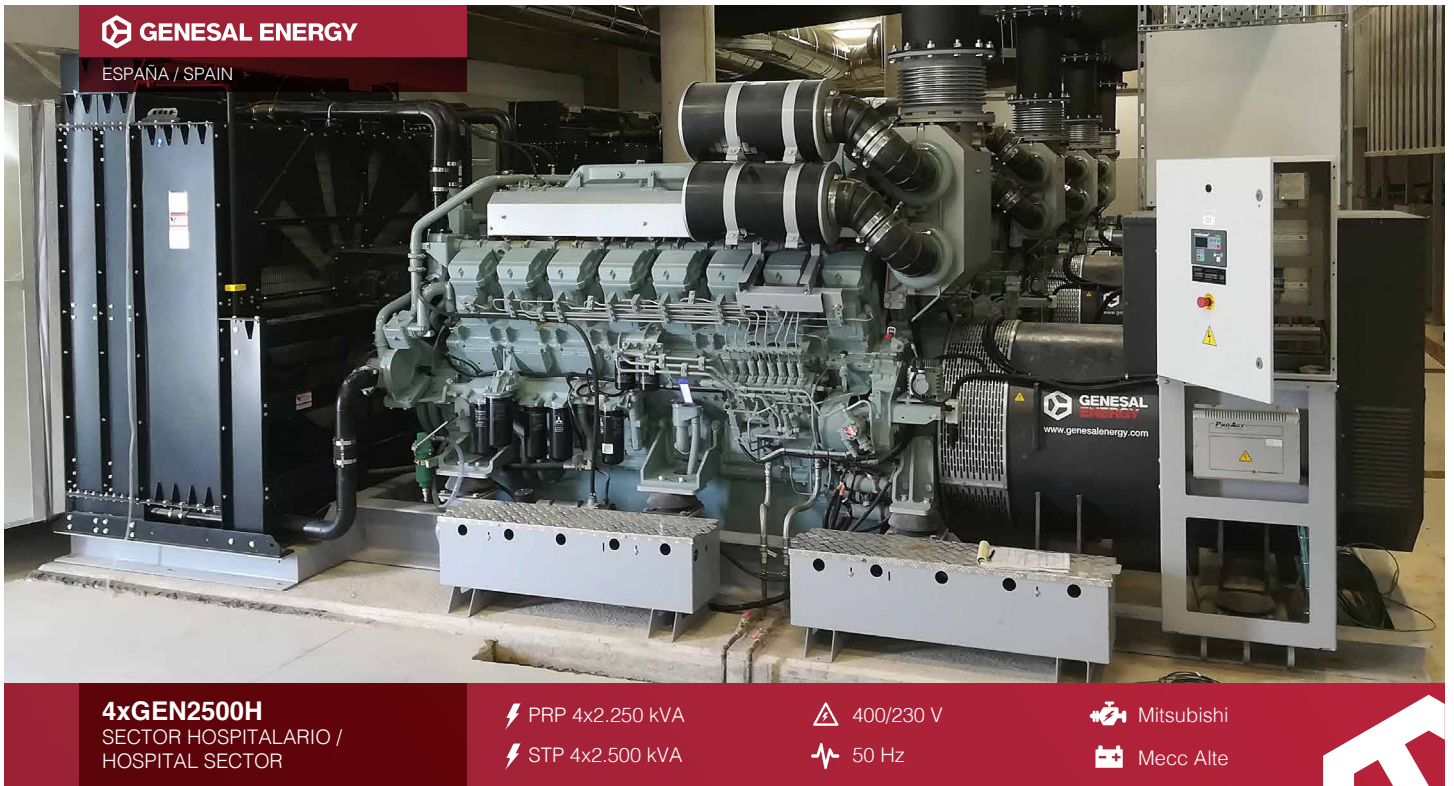


At Genesal Energy, we've designed and installed generator sets of different power ratings for emergency operation in the Miño-Sil river basin.

The goal was to guarantee the continuous supply to the stream, and to provide electricity to the Velle, Castrelos and CH Frieiras dams in the event of a mains power failure. Before executing the project, we carried out a study to correctly establish the dimensions of the gensets, dimensioning the power rating in each sluice gate keeping in mind factors such as voltage drops and slow speeds.

The result, gensets adapted to the conditions of each power plant. Because at Genesal Energy, we provide made-to-measure solutions. It's the only way to achieve efficiency and reliability.

WE SUPPLIED FOUR GENERATOR SETS TO THE HOSPITAL OF TOLEDO (SPAIN)



Electricity is of vital importance in hospitals and its absence can cause fatal consequences for the patients, which is why the most advanced emergency power generation systems are required.

OR's, ICU's, ER's and medical equipment all depend directly on technology and thus, electricity supply must be guaranteed.

Toledo's new hospital, which is expected to open in the first trimestre of 2020, will have Genesal Energy emergency power through four generator sets of 2500 kVA in parallel operation. The hospital complex, whose investment exceeds 300 million euros, will include the most modern technology – in cutting-edge medical equipment alone, the Castilla y León Government has already invested 50 million euros -.

FEATURES

- Open generator sets, 2250 KVA PRP and 2500 KVA STP.
- Mitsubishi engine
- Mecc Alte alternator
- 50 Hz, 1500 rpm, 400/230 V.
- Approved 1.000L double-walled fuel tank.
- 4 units which will operate in parallel, 2 by 2.



SPAIN

Special generator sets for substations in Zaragoza (Spain)



A special canopy with sound attenuators and a 1.300 L fuel tank for 72 hours of autonomy – at 75% load – is one of the features of the genset we've designed for different substations in Zaragoza.

POWER RANGE: 4xGEN110YC

CLIENT'S NEED: To provide power for the auxiliary services of alternating current of the different substations the gensets are intended for. Both genset start-up and shut-down will be carried out by external commands, generated in the panels of the auxiliary services which belong to the client's substations and sectioning stations.

UK

Eight special generator sets for a british distribution center

At Genesal Energy we've designed a total of eight 500 kVA generator sets for a great distribution centre located in Great Britain, belonging to a leading company in the furniture and gardening industry.

The generator sets have been designed to work in groups of four in parallel operation, with the particularity that they can all power their own mains transformer, and synchronize with mains.



NORWAY

Marine Genset: Genesal Energy for a boat in Norway

In this case, the goal was to supply emergency power to a boat to ensure electricity supply at all times. In the event of a possible mains failure, the boat's work system must not be interrupted, as this would cause considerable financial losses.

With this in mind, here at Genesal Energy we designed a made-to-measure genset, complying with the requirements established by the client. We will continue our commitment with Northern Europe, a market in which we're stronger day by day.



FEATURES

- Marine-type engine
- The alternator, breaker and control panel are type approved, which means they are certified to be used in marine applications.
- The alternator has received a total plus impregnation treatment to protect it against the corrosion which is typical in saline environments.
- 4500 mm special canopy with a special paint treatment (C5M) to avoid corrosion due to the location of the genset and its proximity to the sea.
- Easy-access cable inlet from the outside of the canopy
- Manual oil extraction pump

BOLIVIA

WE'VE SUPPLIED EMERGENCY POWER TO THE MONTERO HOSPITAL, IN BOLIVIA

With a capacity for 200 beds and a budget of almost 35 million euros, the future Montero Hospital, in Bolivia, will have emergency power by Genesal Energy. The project, in its final phase, is being carried out by the Bolivian Government and will result in a modern hospital complex which aspires to become a leading specialty centre in Montero, a city in the province of Obispo Santistevan, in the Santa Cruz Department.

In this case, at Genesal Energy we supplied a complete, turn-key service. We manufactured three 410-450 kVA soundproof units for the hospital complex, one of them automatic, and the other two operating in parallel, with an air outlet at the top of the units to adapt to the installation's requirements. They are special units, manufactured after studying the building's characteristics in detail. Because at Genesal Energy, we know that XXI century medicine requires the best power.

FEATURES

- 410/450 kVA units, soundproofed.
- 800 litre fuel tank integrated in the baseframe.
- Air outlet at the top, following the building's requirements.
- 2 of the gensets will operate in parallel, the other will be automatic.
- Automatic fuel transfer system.

GENESAL ENERGY

BOLIVIA



3xGEN450FC
SECTOR HOSPITALARIO /
HOSPITAL SECTOR

⚡ PRP 3x410 kVA

⚡ STP 3x450 kVA

⚡ 400/230 V

⚡ 50 Hz

🔧 FPT

🔧 Leroy Somer

We're launching our new rental range of generator sets



Reliability, versatility and sturdiness define our new Rental range, generator sets through which we consolidate ourselves in the sector.

Our rental generator sets have been **developed alongside the final users**, listening to their needs, their problems, and providing a solution which materialised in the form of this new product.

Extremely reliable and safe – GPS systems for geolocalization in the event of theft and ability to programme to control operational hours or fuel theft – their baseframes are prepared to be dragged along and they can be transported by ramp trucks or by forklift. The soundproof canopy, with rock wool and perforated metal sheets, an elevated fuel filling point, 24 hours autonomy, and an easy electrical interconnection system with plug systems and busbars, are some other of the range's features.

In a Rental unit, everything has been **designed to facilitate maintenance works**, thanks to devices for an easy emptying and filling of anti-freeze, fuel and oil pumps, removable covers on the fuel tank for easy cleaning from above, with 4 caps screwed onto the 4 corners to guarantee an effective emptying during cleaning, and access via a door to the frontal part for access to the exhaust gas silencer and for radiator cleaning.

MEXICO

Presenting the new rental range in Mexico!

Safety, reliability and versatility are just some of the adjectives which all of the gensets from our new rental range share.

The delivery of four generator sets from our new Rental range was the perfect excuse to introduce in Mexico the advantages of these units, which have been developed with the support of various rental companies who have shared with us all of the issues they experienced with the gensets they had.

This is why along with providing a global solution for all of these inconveniences, we applied brand new solutions developed by our engineering department.



The presentation took place in Tepotzotlán (State of Mexico) and during the event we combined Genesal Energy's know-how in the manufacturing of power solutions with our distributor's experience in rental and maintenance.

We will continue offering products and services of the highest quality to continue growing alongside our partners!



NORWAY



Emergency power for a fish farm in Norway

Fish factories are special, extremely delicate installations, where a small power supply failure can turn into a massive catastrophe.

At Genesal Energy, we're experts in avoiding setbacks, in designing, supplying, and installing generator sets capable of guaranteeing the species' life in the event of any incidence, avoiding the loss of millions for the owner.

POWER RANGE: 3xGEN650VA

CLIENT'S NEED: In order to comply with our client's needs, GENESAL ENERGY came up with a system comprised of 3 x 650 kVA units to operate in parallel.

In Norway we've just supplied four 650 kVA emergency units prepared for parallel operation. In the event of a supply failure, the generator sets will take on the essential loads to ensure the operation of the fish factory. We continue to innovate to guarantee our clients' peace of mind.

FEATURES

- Control panel for the parallel operation of the three supplied gensets
- Motorised louvers, and a dry contact for their operation.
- IB-lite module for Modbus communication
- 400 L fuel tank with two maximum level sensors and one 50% level sensor, which will dictate the automatic fuel transfer system's start-up. The valves in the fuel tank are 1 and a half inches, following the client's requests. A 4-20 mA connection for a fuel level indicator is also included.
- Manual oil extraction pump.

WE'RE SME OF THE YEAR!

The award is granted by the A Coruña and Santiago Chambers of Commerce and Banco Santander, and more than 60 companies were competing.

We've received the **Award for SME of the Year 2019**, a prestigious title granted by the A Coruña and Santiago Chambers of Commerce and Banco Santander, in cooperation with the newspaper La Voz de Galicia, which was to go to one of 60 companies in the province of A Coruña.



The SME of the Year Award was created three years ago to recognize the work of small and medium companies in the creation of employment and generation of wealth, and for us it's an absolute honor to receive this title, especially this year, on **our 25th anniversary**.

The mayor of A Coruña, Inés Rey, led the ceremony, which took place on the 9th of July in the Chamber of A Coruña's head office. For their decision, the jury highlighted, amongst other factors, our company's **"constant innovation and improvement in technology, techniques and products"**.

Julio Arca, our Finance and Strategy Director, was in charge of collecting the award and during his intervention, emphasized Genesal's focus on internationalization, innovation, digitalization, and continuous and sustained investment as instruments of growth in an ever more competitive environment.

"PROUD OF BEING PART OF THE INDUSTRY"



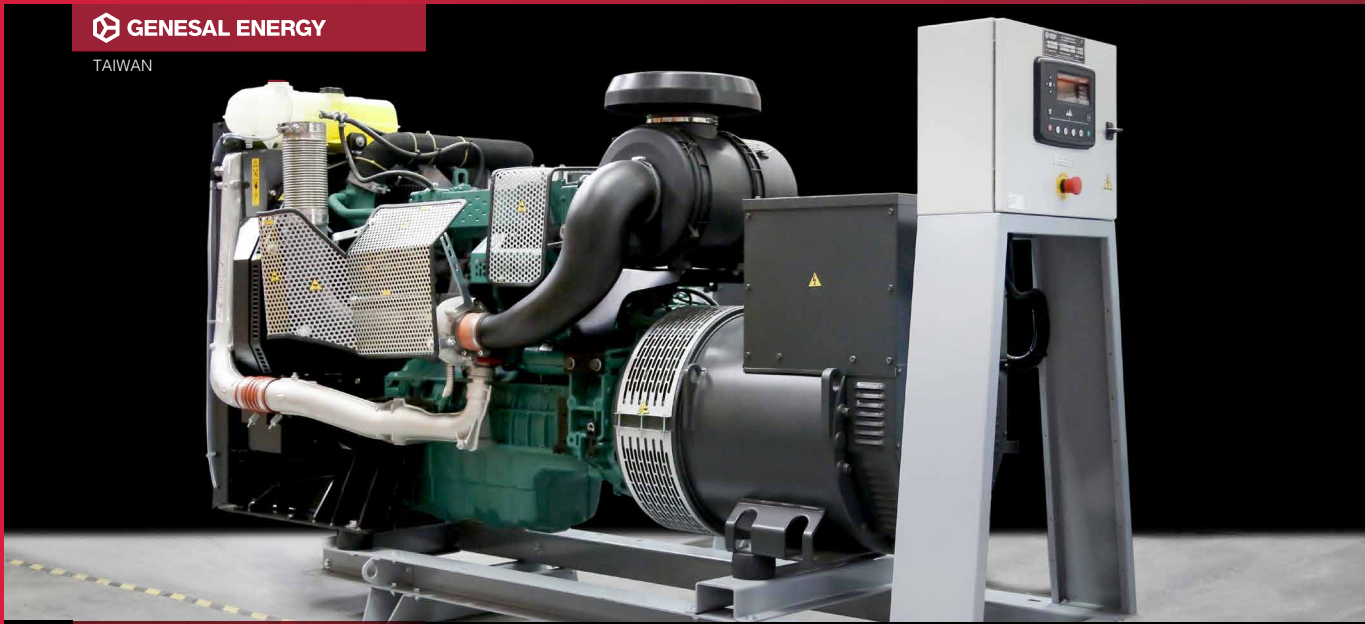
Julio Arca: *"We want to change the current paradigm of the energy industry giving distributed energy an essential role in the future configuration of the sector"*

Arca explained that **"knowing how to manufacture"** is the basis of everything and, in this sense, named the local industry as a driver of development. "We have to be proud of being part of the industry and of our industrial legacy in Galicia and Spain as a whole", he told the audience.

Participating in the awards ceremony (where four accessits were also rewarded: to Distribuciones Tikinting, Cofrico, Do Artesanato and Emociación) were Antonio Couceiro, president of the Chamber of A Coruña; Gonzalo Ortiz, CEO of the Chamber of A Coruña; José Ramón Riobóo, provincial deputy; José Carballo, vicepresident of the Chamber of Santiago de Compostela; Rosario García, regional director of the Banco Santander in Galicia; Juan José Pérez, director of Institutional Relations, Communication and Responsible Banking of Santander Spain and Sofía Vázquez, editor in chief of La Voz de Galicia.

TAIWAN

WE'VE REINFORCED OUR PRESENCE IN ASIA THROUGH A NEW MARKET: TAIWAN, THE EVER-EXPANDING ASIAN TIGER



GENESAL ENERGY
TAIWAN

12XGEN220VA
GRUPO DE CONTINGENCIA /
CONTINGENCY-PREPARED GENSETS

- ⚡ PRP 12x200 kVA
- ⚡ STP 12x220 kVA
- ⚡ 220/127 V
- ⚡ 60 Hz
- 🔧 VOLVO
- 🔧 Mecc alte

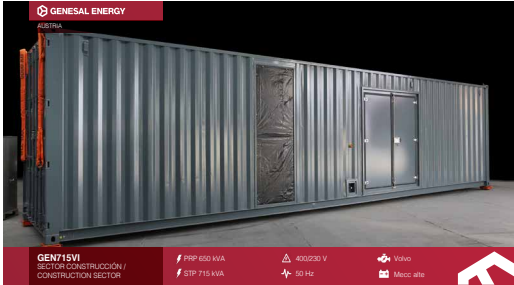


*We continue growing in South East Asia.
We're in Taiwan!*

Taiwan, one of the world's largest economic powerhouses, has Genesal power. The country, one of the Four Asian Tigers, offers great opportunities in the industry and we entered into this market with the supply of a 500 kVA genset designed to supply power in the event of a mains failure. We've now consolidated our presence through 12 units for the Taiwanese Administration, of 200/220 kVA.

They're special units, completely adapted to our client's requirements, and comply with the strict Tier III emission standards. The project marks a turning point in our internationalization plan in South East Asia, where we continue to grow in great strategic markets.

AUSTRIA

Emergency lighting
in the Austrian
highways

Europe is, along with Asia and America, one of our greatest markets. In the European continent, more specifically, in Austria, we've manufactured, supplied and installed an Emergency lighting genset for one of the maintenance centres of the country's highways.

POWER RANGE: GEN715VI

CLIENT'S NEED: Genset for emergency operation in one of the country's highway maintenance centres. The genset will mainly cover the power needs of offices and maintenance workshops mainly.

SUMATRA

Made-to-measure power
thermoelectric power
plant in Sumatra

We've designed, manufactured and supplied one of our tailor-made gensets to the Sumbagut (Sibolga Baru) thermoelectric power plant in Sumatra (Indonesia). **It's a 400-440 kVA generator set whose goal is to maintain power supply in the event of a mains failure.** Our client's request was, therefore, very clear: the genset had to carry out a basic but vital function: to provide power to the power plant's emergency loads if ever the mains were to fail.



SPAIN

We increase our reach in the national
market with the supply of emergency
power for wind farms in Castilla La
Mancha, Aragon and Galicia

Providing power to the primary loads of the electrical substation (wind farm) in the event of a mains failure is the main objective of the gensets designed by Genesal Energy to operate in the Oriche and Venta Vieja substations in Teruel, Montilla del Palancar in Cuenca, and Serra das Penas in Lugo.

In each case, the client asked for an especially low noise level, 75 dB at 7 metres, and oversized fuel tanks. The solution provided by Genesal Energy consisted in manufacturing made-to-measure gensets, each personalised to adapt to each one of the installations.

This way, each one of the four generator sets was designed following the client's needs and complying with their requests, such as the noise level. The gensets are extremely silent thanks to the installation of attenuation systems in the air inlet and outlet of each one.

Furthermore, each unit includes the necessary binary signals in order for the client to integrate it in the substation without any issues.



FEATURES

- Oversized fuel tank.
- Leakage tray.
- Recirculation and heating system for the engine's cooling liquid needed to provide an adequate temperature for the unit's start-up.
- Air inlet and outlet sound attenuators to achieve the required dB's.
- Redundant battery system to guarantee availability of start-up power.
- Dry contacts for the control and monitorization of each genset's status.

EMERGENCY POWER FOR THE LOS LLANOS WIND FARM (SPAIN), A NEW SOURCE OF RENEWABLE POWER



The first wind park to be raised in the province of Malaga was in the Casares municipality and since then the offer for this type of renewable power has not stopped growing. Genesal Energy's focus on alternative and sustainable power has also increased considerably in the last decade, with an ever-growing market, and Andalucía is no exception in our line of business.

This way, one of our latest projects has taken us to the Los Llanos wind park, one of the pioneers in this autonomous community, through the manufacturing and supply of a "turnkey" generator set, made-to-measure for the client, which amongst other requirements, asked that the genset be prepared for remote start-up and that it could provide power to the primary loads in the substation facing a possible mains failure.

The generator set, which will operate in Los Llanos, will start-up remotely when the control system of the substation detects a mains failure because precision is vital in this type of installation where wind is the basic power source.

FEATURES

- Approved double-walled 1.000L fuel tank for outdoors
- Baseframe fuel tank prepared as leakage tray
- Electronic engine speed regulation
- Signal and alarm remote expansion module
- Remote start-up

DOMINICAN REPUBLIC

WE DESIGNED AN “ANTI-HURRICANE” GENERATOR SET FOR A GREAT WIND FARM

Our engineering team has designed and supplied emergency power to the Agua Clara wind farm in the Dominican Republic, a large power station capable of providing power to 250.000 citizens. The wind farm, whose first phase has already come to a close, has 25 wind turbines, of two megawatts (MW) each, which represents an estimated annual production of 170.000 MW/hour.

With an initial investment of 100 million dollars, the project produces 50 MW of renewable power and the objective is to install up to 200 MW once the four phases of the project have concluded. Genesal Energy has designed and supplied a **special generator set**, adapted to face the complicated climate of the region of Monte Cristi, where the wind farm is located.

Agua Clara is in a hurricane-prone area, which means the wind farm's infrastructure requires special equipment capable of facing this type of phenomena. In order to reduce the pressure exerted on a wind turbine by a potential hurricane, it must direct its nacelle and blades with the help of electric and hydraulic motors in such a way that the wind exerts the least force possible on the structure, avoiding harm.

One hundred percent personalized

At the windfarm, the client needed that, in the event of a hurricane or a cyclone and in consequence, a mains failure, the wind turbines could position themselves correctly and avoid serious damage through the use of an alternative source of energy. To achieve this, **we manufactured a generator set capable of powering the auxiliary services** which drive the positioning of the windmills.



GENESAL ENERGY

REPÚBLICA DOMINICANA / DOMINICAN REPUBLIC

GEN1880PC
SUBSTACIÓN ELÉCTRICA /
ELECTRICAL SUBSTATION

⚡ PRP 1.710 kVA

⚡ STP 1.880 kVA

⚡ 400 VCA

⚡ 60 Hz

🔧 Perkins

🔧 Leroy Somer

The generator which we've designed is 100% customised and can be completely managed, controlled and monitored from the wind park's control centre (SCADA). Inside the actual container, the local control system was installed, along with a PLC to manage communication with the farm's SCADA through fiber optics, and a protection relay.



“GENESAL ENERGY HAS DESIGNED AND SUPPLIED A SPECIAL GENSET, ADAPTED TO FACE MONTE CRISTI'S COMPLICATED CLIMATE”

The Genesal Energy unit will receive start-up and shut-down commands from the wind farm's control centre and will start-up and energize a step-up transformer. From that moment onwards, the genset will power the whole wind farm and, therefore, the auxiliary systems need to position each one of the wind turbines to avoid damages in the event of a hurricane.

To compensate the capacitance of the medium-voltage cable runs to the turbines, of hundreds of metres of height, an inductor bank was also installed in the wind farm's substation. The generator set must power the bank during the first seconds after the hurricane, while the wind turbines and the medium-voltage cable runs aren't being powered. In order for the generator set to be able to support this strong inductive load, its alternator was oversized, through the installation of a top of the range 3.000 kVA alternator.

FEATURES

- Engine and alternator pre-heaters.
- ModBus TCP/IP communication.
- Tailor-made control logic carried out through PLC & DEIF AGC4 controller.
- Dedicated electrical protection relay.
- Oversized alternator to support high inductive currents.
- Automatic fuel transfer system.
- Special application for an anti-hurricane system in a wind farm.

MEXICO



TOYOTA CHOOSES A GENESAL EMERGENCY GENSET FOR ITS FACTORY IN GUANAJATO

The **Japanese multinational corporation Toyota** has trusted in Genesal Energy to reinforce the security of one of their largest factories: the Guanajuato plant, in Mexico, where we supplied a special 220 kVA emergency unit. The factory, which is just about to start operating, is one of Toyota's great focuses, as its set to manufacture around 170.000 vehicles a year inside it. Mexico is overall a key player in our international expansion.

We continue to grow and innovate to have the best power!

POWER RANGE: GEN220F

CLIENT'S NEED: Supply of a 220 kVA emergency genset for the switching substation which serves the Toyota manufacturing plant in the municipality of Apaseo el Grande (Guanajuato).

FEATURES

- Double-walled 1000L fuel tank for 12 hours autonomy at 100% load.
- Start-up through external command.
- Communication system with SCADA System through TCP/IP protocol.

MEXICO

A wind farm in Baja California, key in Genesal's efforts towards clean energy

Baja California is one of the Mexican states with a strong focus on renewable energy, and the San Matías wind farm is one of the latest examples. The installation, now in its construction phase, will generate 30 MW, and include eight wind turbines of 2,5 MW and 20 MW. Its commissioning, expected in 2021, will improve the lives of Baja California's inhabitants, including the kiliwas, an indigenous tribe living in Baja California.

At Genesal Energy we participated in the project through the design, manufacturing and supply of **two 200-220 kVA gensets**. At Genesal Energy, renewable energy is a market in expansion in which we believe, and we position ourselves amongst the first positions in the ranking with international projects such as those carried out in Mexico, Oman and the Dominican Republic.



JOSÉ MANUEL FERNÁNDEZ INTERVIEW

Genesal Energy Sales Director

Genesal has been manufacturing gensets for 25 years, maintaining a solid growth. How has the company evolved in this time?

The obsession of the company is, and has always been, international expansion while always focusing on the client, and the production of special projects based on the client's needs and detailed engineering, which sets us apart from most manufacturers. Currently, Genesal has a large and experienced engineering department, which is without a doubt an added asset which sets us apart from the competition. Today, we can say that the challenge of exporting has achieved 70% international sales, and given us the title of reference company in the production of customised gensets, adapted to the needs of each project and client.

Your client portfolio contains everything from nuclear plants to construction and mining companies. Where do the different product families fit into everything?

Really at Genesal we're very focused on industrial gensets and customised projects, without forgetting about rental units. This year, we've come out with a much more robust, soundproof and environmentally friendly design.

Which industries are most significant for your brand, or are being more reinforced?

There are lots: power plants, electrical substations and the food industry, telephone industry, data centres, hospitals; the truth is that there isn't a concrete one industry. We touch on a lot of different areas through the specialization of our product and the type of service we provide to our clients.



José Manuel Fernández: *"We work with people who work with people, making their needs and problems our own."*

One of the companies main focuses is incorporating new products into the line each year. What are some of the new features in your genset catalogue?

As I was saying before, this year we've developed a new rental line, very focused on South America, where we've actually carried out a presentation event, assisted by numerous rental companies in Mexico City, where they could see units up close from 30 to 250 kVA with this new format. The response has been really good.

How is the 2019 fiscal year developing both nationally and internationally?

In general, it's been a really positive year both inside and outside of the country. We've managed to maintain 2018's turnover, a year in which we grew more than 40%, and we're going to surpass it. The objective is to consolidate the business volume, which has been increasing throughout the last three years, while maintaining the same level of service and adapting the structure to the growth we're experiencing. I would like to take advantage and express my gratitude for the work of all of our sales staff in Spain as well as our distributors all around the world, without them none of this would be possible.

The collaboration with suppliers and partners is fundamental to achieving the manufacturing quality of the gensets, which is the result of planned actions of prevention, detection, correction and constant improvement throughout the whole production cycle. How has Genesal improved this process throughout its history?

You can imagine that the change from the beginning to today has been totally radical when it comes to our systems, not our philosophy itself, but nowadays we can count on a totally structured supply chain with its manager, Alejandro Estévez, as well as the rest of product managers and the logistics department. It's completely essential in the environment we're moving in in this day and age.



**GENESAL
ENERGY**

European Engineering

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