CENTRALES ÉLECTRIQUES RENOUVELABLES GFM

GFM FOTOVOLTAICA

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Your Most Efficient Energy

RENEWABLE CHARGING STATION GFM

At GFM we have been experts in the development of renewable energy projects for more than 20 years.

Our commitment to sustainable mobility leads us to be immersed in a continuous development of new innovative products and services capable of meeting both the economic and social objectives set by the European Union.

In this sense we offer our customers sustainable products in the field of mobility, such as our electric vehicle chargers, solar parkings, charging station and hydrogeneras and engineering and legalization projects.

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STRUCTURAL NEED

One of the main problems facing the electric vehicle sector is the range and related charging speed that can be offered to users. These two aspects are fundamental and both will be the main problem that we will have to solve.

If we look at previous data, we can see how since 2013 vehicles have gone from an average range of 137 km to cover in 2019 the 320 km, which implies a considerable growth in this factor.

On the other hand, it can be observed that the loading times have been reduced by up to 40% due to technological progress, which also indicates a good sign to take into account when sizing the supply.

At the moment we can see a market that is on the rise and that will need fast and efficient recharging zones. To do this, this project seeks to offer a complete solution by positioning itself in the town of Villares del Saz as a starting point. This location is optimal as it is located between the first and third largest cities in Spain, on the A3 motorway, at a distance of 135 km from Madrid and 224 km from Valencia.

There is now a growing demand for recharging points to be able to guarantee autonomy in travel, a strategic aspect to ensure the transition in sustainable mobility.

GFM renewable charging stations are designed to meet the structural needs of sustainable mobility in Spain.

OUR CHARGING STATIONS

The main activity to which these facilities will be devoted will be to supply energy to electric and hydrogen vehicles by means of pumps that will provide the necessary load.

At all times our charging stations will ensure easy access to vehicles, security in the refueling and convenient form of reservation and payment through a software developed specifically for it with universal character.

1 MW of wind energy and 2 MW of solar energy will be installed in our charging stations to ensure 100% renewable energy supply.

To ensure the supply of renewable energy we will use lithium accumulation, which is necessary for such a system.

A hydrolyser shall be installed for the supply of hydrogen to such vehicles.

The GFM charging station will have all the services required by a road user. A shop where you can shop, a restaurant to take a break on the road, a GFM solar parking (SuninPark), and a rest area and children's games.

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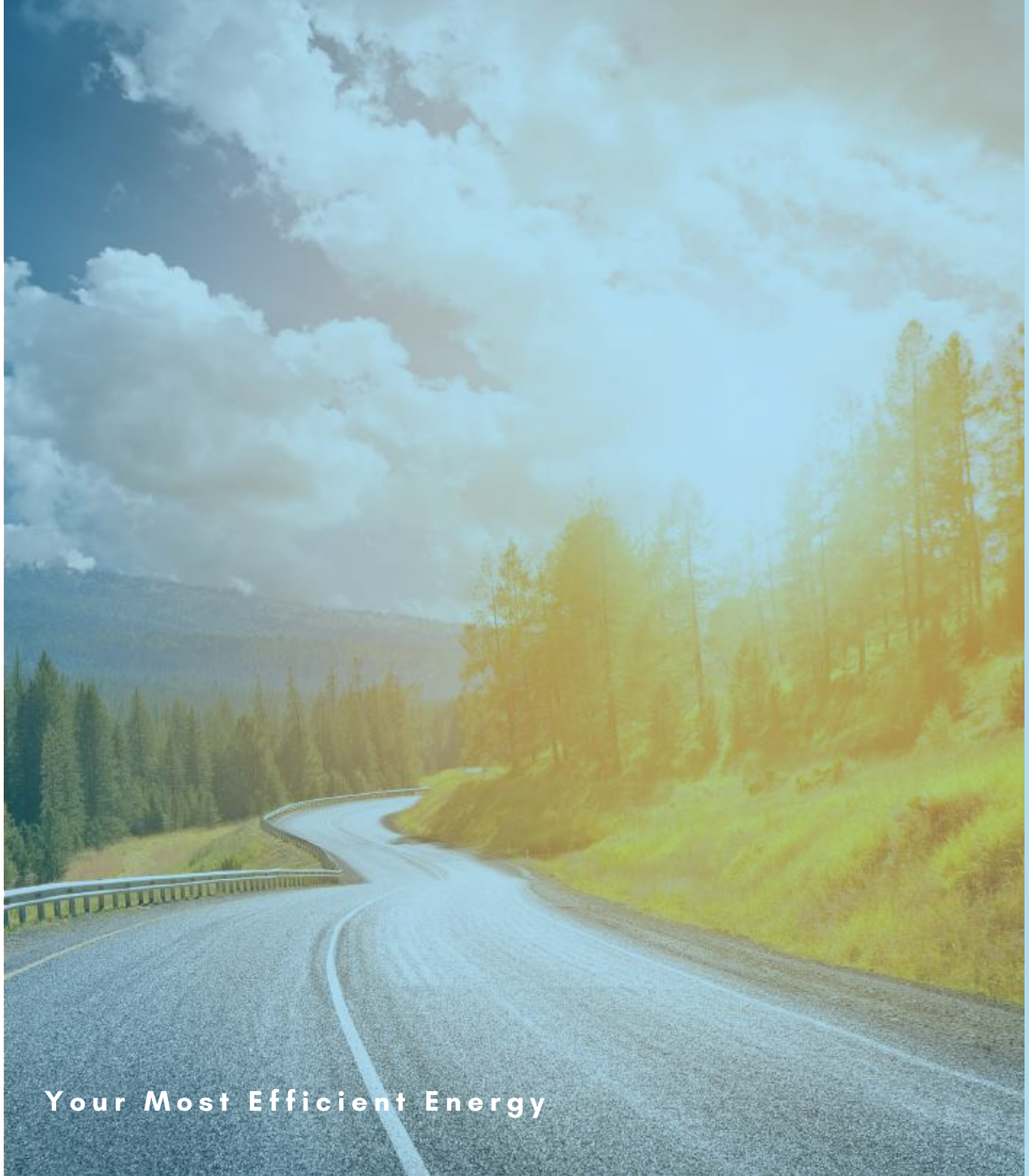

- Enjoy your trip while contributing to CO2 reduction

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CONDITIONS FOR ELECTRIC RECHARGING

The types of electric recharge basically refer to the speed of it, talking about four charging modes that grow progressively, where the 1 would mean the slowest mode and the 4 would refer to the fastest.

Below is a table detailing the most important parameters in the types of recharging electric vehicles.

Type	Voltage	Potency	Estimated charging time
1	230	3.7 kW< P < 7.2 kW	10 hours
2	230/400	7.2 kW< P < 22 kW	6-8 hours
3	230/400	22 kW< P < 50 kW	3-4 hours
4	400	> 50 kW	< 30 min

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CONDITIONS FOR ELECTRIC RECHARGING

As for the connection of cars to the pump, there are several types of which will be used. In particular, the most commonly used types will be used, among them CHAdeMO and CCS, trying to minimize the loading time.

- CHAdeMO "MOve CHArge". - can supply up to 62.5 kW / 500 V, 125 A DC high voltage.
- CCS or Combo, is an international standard for charging modes (especially fast) for electric vehicles.
- Type 2 AC unit: up to 480 V and 32 A (1/3 phase rated current)

GFM is in continuous search of new developments that allow faster loading for our customers.

All our chargers will be fast or ultra-fast charging and the number of chargers will increase depending on the demand of each electroliner.

Model	Automy	Model	Automt	Model	Automy
BMW i3	160 Km	Jaguar I-Pace	480 Km	Renault Zoe	240Km
Citroen e-Mehari	200 Km	Nissan Leaf	199 Km	Tesla Model S	Hasta 632 Km
Hyundai Loniq EV	280Km	Opel Corsa-e	330 Km	Tesla Model X	Hasta 565 Km
Hyundai Kona EV	449 Km	Peugeot e-208	340 Km	Volkswagen e-Golf	190 Km

***Example table of range per vehicle model**

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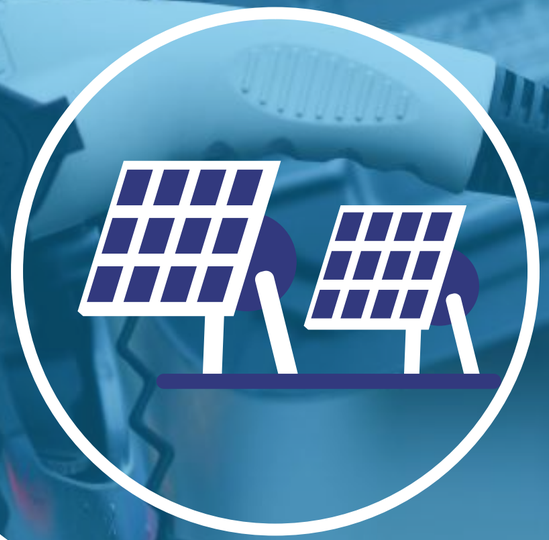
WHAT THE GFM CHARGING STATION INTEGRATES

L'activité principale à laquelle ces installations seront dédiées sera d'alimenter des véhicules électriques et à hydrogène, grâce à des pompes qui assureront la charge nécessaire. De plus, l'établissement disposera d'une boutique où vous pourrez faire vos achats typiques d'une station-service, d'un parking et d'une aire de jeux pour enfants.



Aire de Stationnement

Tienda

Leisure Area

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ADVANTAGES OF PRODUCT

Cost savings

Turnkey Solution

Usability

Adaptability

360° Advice

Image and Visibility

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THE ENERGY THAT MOVES THE GFM CHARGING STATION

PHOTOVOLTAIC PLANT

GFM charging stations move with green energy generated in the same location. Mainly our charging stations will generate energy with solar plants to take advantage of one of the most abundant resources in our country. The sun.

Initially the first charging station of Villares del Saz will have 2 MW of this type of energy installed in tracker to an axis and interconnected to the electrical grid.

In this way we can ensure stability in the event of one of these two situations:

- Production and storage are not sufficient to supply consumption.
- If there is excess generation, it will be injected into the electrical system.

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THE ENERGY THAT MOVES THE GFM CHARGING STATION

WIND PLANT

Depending on the location of the charging station and the wind resource we have, it will bring a wind power plant that adds green energy to the charging station.

In the first charging station in Villares Del Saz is planned the installation of a 1.5 MW wind turbine. Since the connection to the electricity grid is 1 MW, we also guarantee the sale of the surplus at all times.

As the wind and solar power generation curve is different, the combination of both technologies offers us greater robustness and stability in the supply.

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ENERGY STORAGE

LITHIUM BATTERIES

GFM charging stations, despite having power grid connection and ensuring supply, will install advanced lithium storage systems to maximise the supply of renewable energy to consumers.

The installed capacity will depend on the demand at all times. That is, it will be an increasing accumulation in function of the growth in the number of recharges.
Our charging stations are ready to add other types of storage such as the flywheel.

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HIDROGENERA

The new energy carrier as an energy supply system

GFM charging stations, as the demand for hydrogen-powered vehicles advances, will have an H2 supply point.

Hydrogen as a fuel is one of the alternatives currently being considered to replace gasoline and diesel, especially in some countries in Europe and Asia, where cars powered by this gas are already circulating.

The generation of hydrogen can be carried out in the same charging station with the green energy generated.

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HIDROGENERA

The new energy vector as energy storage system

A new method of storing energy is using chemical reactions that absorb it in one direction (thus being accumulated) and return it in the opposite direction (reintegrating it); for this, these processes must be reversible.

At the moment the best system that adapts to these conditions is the decomposition of water through electrolysis: 2H2O + energy 2H2 +O2.
When the opposite process is carried out 2H2 + O2 2H20 + energy.

For this, an electrolyser (energy absorption) and a combustion engine that uses the previously obtained hydrogen are necessary. Oxygen can be taken from the air and it is not necessary to store it, connected to a generator (recovery).

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GFM HISTORY

YEAR 2000

GEA wind power was funded

YEAR 2004

GFM Photovoltaic creation

YEARS 2005-2012

Solar plant promotion / Solar plant maintenance

YEARS 2013-2014

First self-consumption projects / ITECAM member / First SuninBox Julia with AECID in Ethiopia

YEAR 2014

SuninBox H2020 development / Seal of Excellence by European Commission

YEAR 2015

First participation in national and international exhibitions

YEARS 2017-2018

First SuninTrailer development in Chile / Recognition as Innovative SME / INNOVA Adelante projects / First SuninTrolley in Dominican Republic.

YEAR 2018

First EV-charging point / Certification in accordance with ISO 9001 and 14001 standards / First consulting actions

YEAR 2019

APPA management boards / UUNN consulting services

YEAR 2020

Certification in accordance with SA800 standards / Recognition as Innovative SME by AENOR / First self-consumption project in Senegal / WatEnergy project / Syrian refugees aid project in Jordan with AECID.

YEAR 2021

GFM Foundation First HQ in Africa

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The investment in research and development, the high qualification of our team of engineers and the commitment to quality and innovation, have allowed us to get here to continue developing new solutions with which to meet the needs of our customers.

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WE ARE SPECIALISTS

PRODUCTS

We are specialists in solutions for industrial and residential self-consumption and in the creation of solar car parks with recharging points for electric vehicles

SOLUTIONS ISOLATED

Pioneros en el desarrollo de soluciones deelectrificación rural:
SuninBox / SuninTrailler
SuninTrolley / Watenergy

SERVICES

Engineering projects / Maintenance of solar parks / Comprehensive advice

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SAVING COSTS

Our solutions will let you save money through industrialization, structural optimization and integration elements

TURNKEY

From the very beginning design to manufacturing, setting up, permits management and control, GFM will provide you with a turnkey solution

FULL ADVISING

GFM provides a full 360 structural and energy advising aimed to achieve the most efficient solution and the one that best fits your needs

ENERGY EFFICIENCY

Our client will be able to check real time information regarding solar consumption and production through control. In this way, losses are avoided and performance is increased.

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REVIEWS

SA 8000 CERTIFICATION

ISO 14001 CERTIFICATION

ISO 9001 CERTIFICATION

PYME INNOVATIVE

COLLABORATION WITH THE UNITED NATIONS

MEMBERS OF THE ALLIANCE FOR RURAL SELECTRIFICATIO N

PROJECTS

SUNINBOX

SUNINTRAILER

SUNINTROLLEY

WATENERGY

United Nations
UNGSC

Complejo Astronómico laHita

movalt Vehículos
Plan de Apoyo a la Movilidad Alternativa

ec-innova

GERIS

Hibricom

ALIENA

ASSOCIATIONS

APPA
Asociación de Empresas de Energías Renovables

ezzingsolar

GEREFIC

Castilla-La Mancha

Perimeter Security

PARTNERS

itecam
Centro Tecnológico del Metal de Castilla - La Mancha

HORIZON 2020

astroHita
FUNDACION

INNOVATIVE SME

GFM FOTOVOLTAICA

CONTACT

In the heart of La Mancha, in the municipality of Villacañas, Toledo (Spain), is our headquarters.
From here we design and work on the best energy solutions to convert businesses and homes into energy efficient and sustainable places.

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