



INTRODUCTION TO INTEGRATED FOOD ENERGY SYSTEMS (IFES) CONCEPT FOR CLIMATE-SMART AGRICULTURE - CCOV

CORRESPONDING MODULE 1

Introduction

Integrated Food Energy Systems (IFES) aim at addressing **food security** of the rural regions and **global climate change** by **simultaneously producing food and energy**, as a possible way to achieve the energy component of sustainable crop intensification through the ecosystem approach.

Even though the possible integration of renewable energy facilities and farming land are huge and it is difficult to resume up all possibilities available, some of the local possible solutions are the following ones:

- Energy Communities; Renewables and Efficiency Integrated in facilities; Agrovoltatics; Floating solar power plants irrigation ponds or local lakes; Solar water pumping; Wind water pumping; Microhydraulic; Biomass, Solar thermal or Geothermal energies in facilities; Biomass production (Agroforestry, SRPs, slurry Biogas production, SRP, Solid Biomass production, etc.); Wastewater use to produce biomass; Microalgae; Others



Description

Gonzalez Byass was founded in 1835 and since then it has been dedicated to the world of wine. It is a company with 12 wineries in Spain, as well as other wineries abroad. This company produces and markets high quality wines and spirits with a global reach.

Gonzalez Byass is committed to the reduction of atmospheric emissions, renewable energies and energy efficiency.

For this reason, in one of the estates called Daramezas, which is located in the municipality of Guadamur and Toledo, a 40 kW photovoltaic solar plant has recently been installed between the vine plantations, thus integrating the production of renewable energy with the production of wine. The land has approximately 510 HECTARES, all of which are dedicated to wine production. The company Gonzalez Byass, has the "Wineries for climate protection" (WfCP) certification, a standard promoted by the Spanish Wine Federation (FEV) created by wineries.

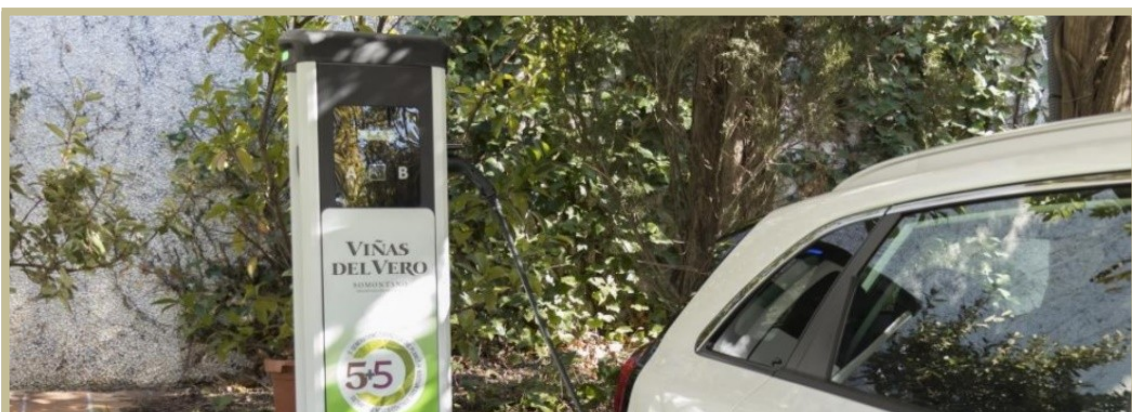
They have had the collaboration of the Spanish Association for Standardisation (AENOR).

This type of solar installation is the first in Spain. The solar panels adapt to the needs of the plants and regulate the incidence of the sun and the temperature, thanks to sensors placed on them.





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Advantages and challenges

Gonzalez Byass has a clear commitment to sustainability. A commitment that spans five generations and that has led the company to the present day. This work continues today as well. An action of the present with an eye on the future. It incorporates new technologies to the traditional production system of this product that consumes less energy and also improves the final quality.

As for the photovoltaic solar installation, it should be noted that it has the following advantages and disadvantages:

- Advantages:
 - Economic savings.
 - Removable source energy.
 - Reduction of CO2 emissions.
 - Low maintenance of the installation.
 - Use of the same space for agriculture and the production of renewable energies.
 - The combination of vegetation and solar panels reduces the temperature and increases the yield of the plant.
 - Reduces dust in the environment.
 - More efficient use of land.
 - Improves the crop's resistance to climatic conditions.
 - Improves grape quality.
- Disadvantages:
 - High initial investment
 - Variable energy source - Depends on weather conditions
 - Need to install batteries to become independent from the electricity grid

González Byass intends to continue installing renewable energy sources in line with its global carbon reduction plan. For example, with geothermal energy, green hydrogen or solar thermal energy.



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Main data

- The company currently has 12 wineries in Spain as well as others in Chile, Mexico, the United Kingdom and the United States.
- It employs more than 900 people at all sites.
- Gross turnover in 2019 amounted to €309 million, with net turnover of €240 million.
- Gonzalez Byass is committed to reducing atmospheric emissions, renewable energies, energy efficiency, water management and waste reduction. For this reason, it has implemented a series of specific measures in the winery group, which allow it to reduce its carbon footprint, such as:
 - * Installation of a biomass boiler
 - * Consumption monitoring
 - * Changes to reduce water demand
 - * Change of luminaires to LEDs
 - * Installation of photovoltaic solar energy

Further Information

- www.gonzalezbyass.com/
- <https://giviti.com/project/finca-daramezas/>
- <https://www.solarinfo.es/2022/10/03/vinedos-gonzalez-byass-grupo-emperador-ponen-acogen-planta-agrovoltaica-inteligente>
- <https://cadenaser.com/castillalamancha/2022/10/03/guadamur-toledo-acoge-la-primera-planta-agrovoltaica-inteligente-de-espana-ser-toledo/>
- <https://www.ideal.es/economia/instalada-toledo-primera-20220929123549-ntrc.html>
- <https://www.beonloop.com/2022/11/05/winesolar-el-proyecto-de-fotovoltaica-de-gonzalez-byass>