European Commission

SOLAR ENERGY

INNOVATION FUND

Deploying innovative net-zero technologies for climate neutrality

SUNAGRI Carbon Farm: Dynamic Agrivoltaic for Farm decarbonization and agriculture sustainability

The Innovation Fund is 100% funded by the EU Emissions Trading System

| Project Factsheet

The Sun'Agri Carbon Farm project strives to deploy an agrivoltaic farm of the future which aims to protect agricultural production from climate change, and allow the farm to be self-sufficient and sustainable, targeting fair and green agriculture while providing an additional source of income for farmers through the resale of surplus energy generated. The Sun'Agri dynamic agrivoltaic solution operates on 2 levels: a lower level dedicated to agricultural crops (the system's main product), and an upper level dedicated to electricity production. The Carbon Farm system consists of a dynamic agrivoltaic structure that covers an area of 6 Hectares (ha) with 3 types of Mediterranean open-field and greenhouse crops (grapevine, fruit trees and vegetables). The projections of the project result in relative greenhouse gas (GHG) emissions reduction of 100% compared to the reference scenario.

COORDINATOR
SUN AGRI

LOCATION
France

CATEGORY
Renewable Energy (RES)

SECTOR
Solar energy

AMOUNT OF INNOVATION FUND GRANT
EUR 4,268,378

EXPECTED GHG EMISSIONS AVOIDANCE
12,039 tonnes CO2 equivalent

STARTING DATE
01 June, 2024

ENTRY INTO OPERATION DATE
31 May, 2028

FINANCIAL CLOSE DATE
30 November, 2027

** Calculated vs. the 2021-2025 ETS benchmark of 6.84 tCO2e/tH2, not taking into account additional carbon abatement due to substitution effects in the H2 end use application, i.e. conservative estimate.*

Updated on 23 May 2025

The Carbon Farm project goes beyond the state-of-the-art by developing a global solution for farm sustainability through crop protection and enhancing economic performance of Mediterranean farms. The innovations include dynamic bifacial Photovoltaic (PV) panels, intelligent cultivation operations through the direct use of solar power and decision-support tools to optimise inputs and cultivation itineraries, and the integration of Artificial Intelligence (AI) based models to optimise both energy and crop production.

Climate change is increasingly affecting agriculture. Agrivoltaics at the plot level are a first step towards climate change adaptation, but they are no longer enough. This Carbon Farm project seeks to fulfil the goals set by the European Green Deal and the climate change adaptation strategies in the Mediterranean basin and to influence the European Union's energy, agricultural, and financial policies. Thanks to its bifacial PV panels and intelligent shade control, the Carbon Farm system can protect crops against climate change and generate energy, thus reducing electricity poverty and enabling electricity to be used in rural areas far from the grid.

This innovative solution can create new vocations and jobs in agriculture, reduce the use of fossil fuels and regenerate the agriculture sector. Better crop yields also lead to the economic feasibility of the project. The project, either directly along the project duration, or because of its outcomes, will create direct and indirect jobs along the entire agrivoltaics value chain. This Carbon farm project will also generate key scientific information concerning the influence of specific climate/growing conditions and intervention measures on the physiology, stress, health, and product quality/yield of several crops, as well as on the global health of the associated ecosystem.

| Participants

SUN AGRI	France
SUN'R GROUPE	France