

Enoé group is a French green and local energy producer, managing the overall value chain (design, development, finance, construction, operation, and maintenance).

Enoé was created by 3 experienced entrepreneurs convinced by the urge to respect our environment who have set themselves the objective of producing accessible renewable energies.

Enoé's development strategy is based on innovation and strong local presence to answer the needs of a growing market facing multiple challenges:

- Securing energy prices through PPAs for companies
- Developing agrivoltaic solutions with the key objective of a positive synergy between renewable energy and agricultural productions
- Optimizing artificialized areas to enable dual use

Enoé stands for a sustainable synergy between renewable energies and agriculture, the group has defined its agrivoltaic approach in the “agrinoé charter” in 2022.

Enoé vows to follow recommendations from the various French agricultural federations and institutes on all of their projects:

- Make agricultural activity, animal welfare and environmental protection a priority
- Contribute to the durability of agricultural plants and develop modern, efficient, and reliable production solutions
- Fight against major agricultural challenges

According to French regulation, enoé offers complete production tools, integrating the needs from technical itineraries, while being the simplest possible to guarantee their good usage, longevity, and economic viability. Our agrivoltaic solutions offer the following services :

- Protection against climate hazards
- Adaptation to climate changes
- Improvement of animal welfare
- Improvement of potential and agronomic impacts

FONDAMENTAL PRINCIPLES OF OUR AGRIVOLTAIC PROJECTS

Above all, an agricultural project...

- Place the farmer at the heart of the project: the project must be co-designed with the farmer, our teams provide full support and advise to adapt our solutions to his needs, while considering the technical and economic viability of the tool.
- Offer solutions that improve the productions' quality and targeting forecastable productivity to make the agricultural productions sustainable.
- Preserve agricultural land: the land keeps its initial and main agricultural vocation, no modifications of town planning zoning only mentioning the renewable energy production.
- Project conception scaled to the overall farm and not only to the parcel, to guarantee a viable technical and economical project on the long run.
- Income repartition on a working farm: when the project includes a payment, it is divided in a minor share for the landlord and a major share for the farmer

- The rent paid to the landowner(s) must not increase the price of the land.
- The payment made to the farmer in the form of a service contract, as additional revenue and not competing with his agricultural revenues, can not exceed 35% of the agricultural incomes.

...fitting with a territory...

- Our solutions are adapted to each agricultural sector and territory
- Consultation and transparency towards all the parties at early stages of development
- Consideration of each territory and farm specificities in the conception of our solutions
- Economic outcomes adapted to the collective needs of the territory
- Crowdfunding offered to the inhabitants

...Respecting the environment...

- Support and encourage agricultural projects respecting the environment: optimizing the water needs, limiting the inputs, maintaining at least the existing level of biodiversity
- Preserve the ground: monopile, drive piles, peripheral tracks and tailored firemen access defined, usage of trackers - except for >10% gradient in field protection (solutions: ovinoé, arboé, vitinoé).
- Avoidance as evidence: our motto "adapt the project to its environment and territory, and not the other way around". Our teams integrate this philosophy at each stage of the project's development, from the conception to the construction, operation, and maintenance. This way, our agrivoltaic projects avoid the important concern of fauna and flora and adapt to the landscape. The wooded elements and the hedges are kept, cleaning is prohibited, the hydrologic network is kept as is, leveling is done at bare minimum.

...reversible...

- Project conception considering the evolution of agricultural activities for the duration of the agrivoltaic plant: each solution is based on and adapted to an activity, which can evolve (piloting the modules, space between the rows of modules enabling to consider a change in agricultural activity). The approach scaled on the overall farm enables to consider modifications of productions on parcels.
- Guaranteed dismantling of the agrivoltaic plant and rehabilitation of the site, in compliance with regulation

Finally, projects managed to guarantee their agricultural purposes and farmers' wellbeing on the long run

- Improve the working conditions of farmers (physical protection against climate risks, eased path for machines, remote monitoring of the site)
- Guiding the farmer all along the development and operation of the agrivoltaic plant
- Offer training to the farmer

- Secure all parties thanks to a contractual agreement: emphyteutic lease between enoé – the landlord - and in presence of the farmer, agrivoltaic convention between enoé and the farmer mentioning the conditions of long-term provision, the role of each party, and the services contract if necessary
- Respect the recommendations from the agricultural federations
- Provide an agronomical guidance through an independent organization stated by a convention of agronomic follow up between the farmer – enoé – the agronomical organization

OUR AGRIVOLTAIC SOLUTIONS

Based on international feedbacks, in collaboration with the representatives of the various agricultural sectors and farmers, enoé has developed several agrivoltaic solutions:

- **Arboriculture and viticulture (Vitinoé and Arboé solutions):** protection as field shutters where a row of modules is placed on top of the culture rows to bring physical protection against climate hazards and create a favorable microclimate towards plants' growth. These structures integrate irrigation and antifreeze systems by water-saving sparkling. The set-up of nets and the use of the structure for the fence are possible. The modules with various intensity of transparency (0 to 50%) on trackers are piloted depending on the light needs and the optimal microclimate depending on the phenology phases. The objective is to offer a ready to use production tool enabling to secure the productivity and lower the costs of production (water / inputs).
- **Poultry-farming (Avinoé solution):** a combination of solar shelters and agroforestry, enabling the valorization of poultry routes by encouraging animals to move while respecting the recommendations of the profession (a maximum of 10% of the route covered by solar shelters).
- **Sheep farming (Ovinoé solution):** enoé created an innovative concept where the development of renewable energies offers solutions in terms of support and re-dynamization of the ovine sector, historical production of several French regions. France is the 3rd European producer of ovine meat, while being largely in deficit of ovine meat. The population of farmers is elderly: 51% of the farmers will retire in 10 years. Thus, France faces a strong agricultural loss with lots of farms for sale that can't find buyers: only one opportunity out of 3 succeeds. The candidates can't find the necessary funds to acquire the land and invest in the equipment at the same time. Implementing an agrivoltaic plant on the agricultural land, if adapted to the ovine farming and respecting strict specifications in terms of set up enables:
 - To lower operating costs by (1) ensuring a protection of the livestock on field, meaning a shorter time in sheepfold, (2) improving the quality and quantity of fodder through a protection against climate hazards and (3) improving the working conditions of the farmer
 - To finance the acquisition of the land by the farmer, thanks to the rent paid by the agrivoltaic station developer to the farmer, and thus to guarantee the transmission of farms with the land to farmers, and the upkeeping of this farming activity on the territory

- To ensure a complementary income to the farmer allowing him to diversify his incomes and thus reduce his financial risks facing the hazards of the occupation of sheep breeder

Our technical solution is composed of rows of bifacial modules on trackers allowing to distribute in a homogeneous way the rainwater, to bring the necessary light to the meadows while protecting them from the strong heats and the cold to lengthen the duration of production and the quality of the fodder. The seven meters separating the rows of modules as well as their mobility allow the passage of all the agricultural machines according to the needs of the farmer. The open field protection offered to the animals improves their well-being and the outdoor period, optimizes operating costs and work comfort for the farmer who also has access to surveillance cameras on the site and leaving turning and control strips free of modules regularly on each plot according to their surface and shape. A watering network is created at the same time, optimizing the grazing and the work of the farmer.

- **Cows farming (Bovinoé solution):** we have adapted our ovinoé tool to cows farming. Our tracking solution has been slightly elevated, and the monitoring system adapted when cows are present on the site to limit the movement of the modules.

In a process of innovation and continuous improvement, we develop new solutions to meet the needs of new agricultural productions.